

The “No Fibbin” RF Field Strength Meter

The field strength meter is simple, effective and easy to construct. This project answers that age-old question—is anything radiating from this antenna?

This low budget homebrew project will pay big dividends in making sure you get the best signal out of your antenna system. And it needs no batteries.

In the 25 years I have spent working as a telecommunications technician, one of the most useful, yet simple, pieces of test gear I have used is the RF field strength meter. Its only job is to give you a relative signal strength reading of near field RF signal radiated from a transmitting antenna. After the bench testing is done and antenna VSWR is measured, nothing else will give you a better idea of transmitter and antenna performance than the RF field strength meter.

Any ham who has a 146 MHz or a 440 MHz hand-held transceiver is at the mercy of the sales brochures when choosing the best flexible [rubber duck] antenna for your radio. How many times have you *not* been able to work a repeater or work simplex nearly as well as someone else who has a similar radio or one with even

less RF output power than yours? How can you tell if the wire inside a flexible antenna has broken or if the antenna doesn't radiate well? The RF field strength meter will soon reveal how well (or how poorly) your antenna is radiating. The meter is great for determining the front to back ratio and forward gain of a Yagi or quad. You can also compare relative signal strength between a $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{5}{8}$ wavelength antenna on your vehicle. You might be surprised at the results!

The “No Fibbin” field strength meter can be made using parts that many hams already have around the shack. The best results will be obtained using germanium or Schottky small signal diodes, a metal enclosure and an analog meter movement (which has a low full-scale deflection current). The other component values are not critical; close is good enough. All the parts can be mounted on a small pre-punched PC board or they can be wired point-to-point without a PC board. In either case, keep the component leads as short as pos-



The RF Signal Strength meter responding to my Kenwood TH-26AT transmitting on 147.900 MHz with 1 W, 2 feet away from the meter. The sensitivity control is set at mid range.

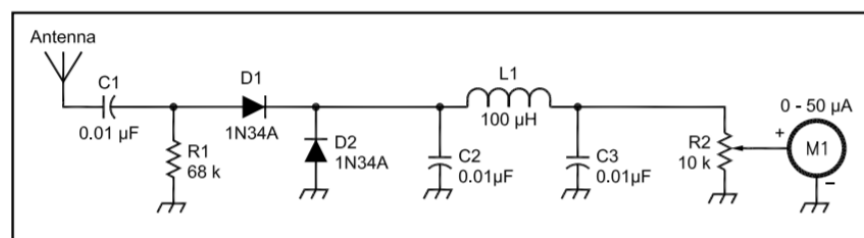


Figure 1—Schematic diagram of the signal strength meter. RS = Radio Shack (www.radioshack.com/).

C1-C3—0.01 µF capacitors (RS 272-1051 or equiv).
D1, D2—1N34A diodes (RS 276-1123).
L1—100 µH inductor (RS 273-102).
M1—Analog meter, 50 µA (RS 910-0360).
R2—Sensitivity control potentiometer, 10 kΩ (RS 271-1715).

Antenna—BNC female chassis mount socket. Antenna selection should match the frequency band for VHF and UHF. A random length of wire might work best for close field measurements on HF to 40 meters. Metal box enclosure is mandatory.

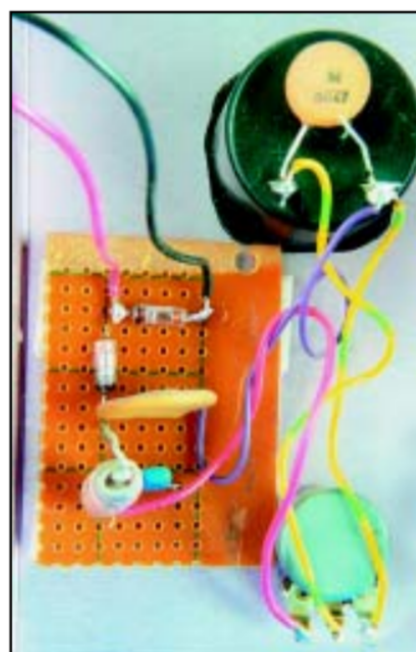


Figure 2—Close up of the circuit board.



Figure 3—The case, circuit board and antennas for the field strength meter.

FEEDBACK

◇ An error appears in Figure 1 of “The ‘No Fibbin’ RF Field Strength Meter” (Aug 2002 *QST*, p 28). The correct way to wire D2 is the anode to ground and the cathode to the anode of D1 (also the junction of R1 and D1). As shown in the photos, C1 is optional and an additional 0.01 μF bypass capacitor can be installed across the meter movement.—*John Noakes, VE7NI*

QST August 2002 29

STRAYS

MILITARY RADIO COLLECTORS TO MEET

◇ The Military Radio Collectors Association will hold its third annual meet at the West End Fairgrounds, Gilbert, Pennsylvania, September 6-8, 2002. Hours are 0800 to 1700 local time. Activities include equipment displays, on the air operation, formal presentations and a swapmeet. For more information, see www.milradio.org/ or contact Pete Hamersma, WB2JWU, PO Box 467, Holderness, NH 03245, e-mail pehamers@worldpath.net.

[Previous](#) • [Next](#) Strays

FEEDBACK

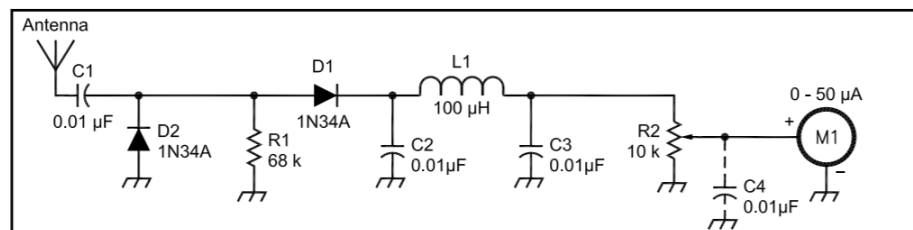
◇ In the item concerning magnetic headings in “The Doctor is IN,” *QST*, Jul 2002, p 47, the Doctor reversed his plus and minus signs. The first paragraph should read:

The ARRL maps are calibrated in True degrees, referred to True North (“straight up” on the maps). Magnetic headings are calculated by taking the True headings and subtracting the Magnetic Declination (also called the Magnetic Variation in nautical applications). For example, if the map shows a variation (declination) of 12° east, this means that Magnetic North is 12° east of “straight up.” So, a heading of 45° True is equivalent to a magnetic heading of 45° – 12° east = 33° magnetic. For a westerly variation (for example 6° west), add the value for variation. Thus, 45° True + 6°

west = 51° magnetic. An old mariner’s ditty, “east is least; west is best,” can help you remember that you subtract an easterly declination or add a westerly declination to convert True to Magnetic.

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Revised Figure 1

QST

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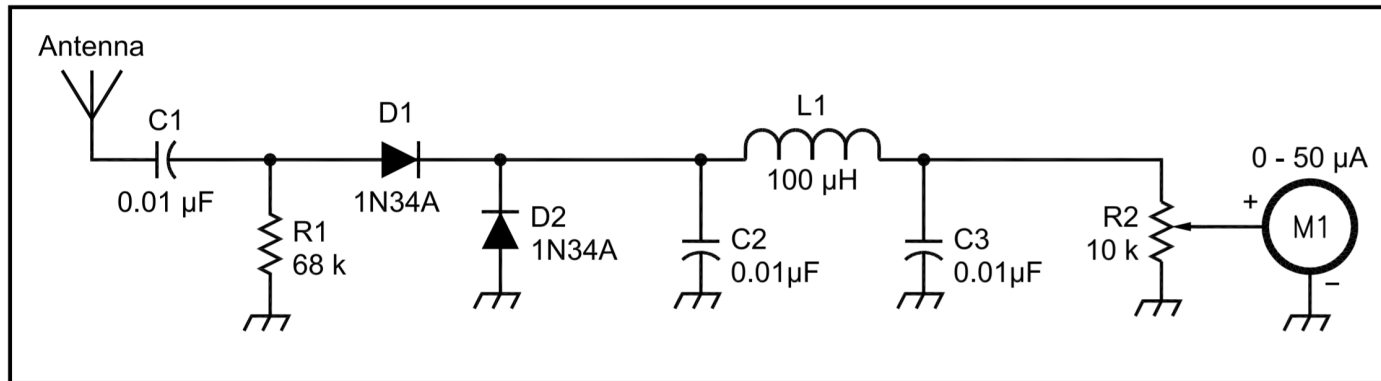


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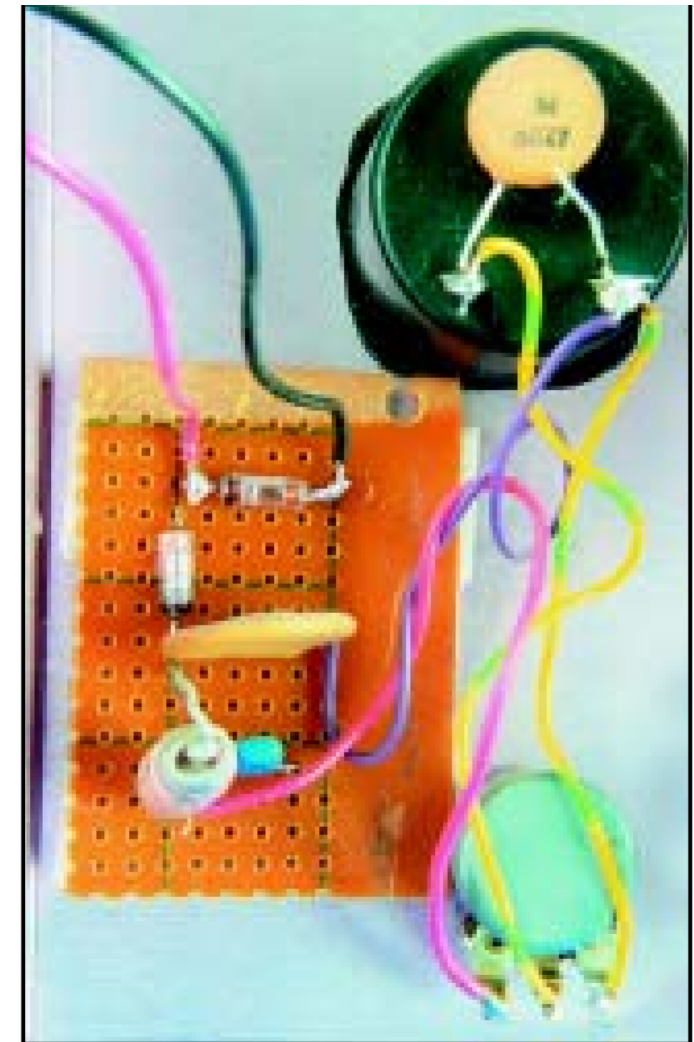


Figure 2—Close up of the circuit board.

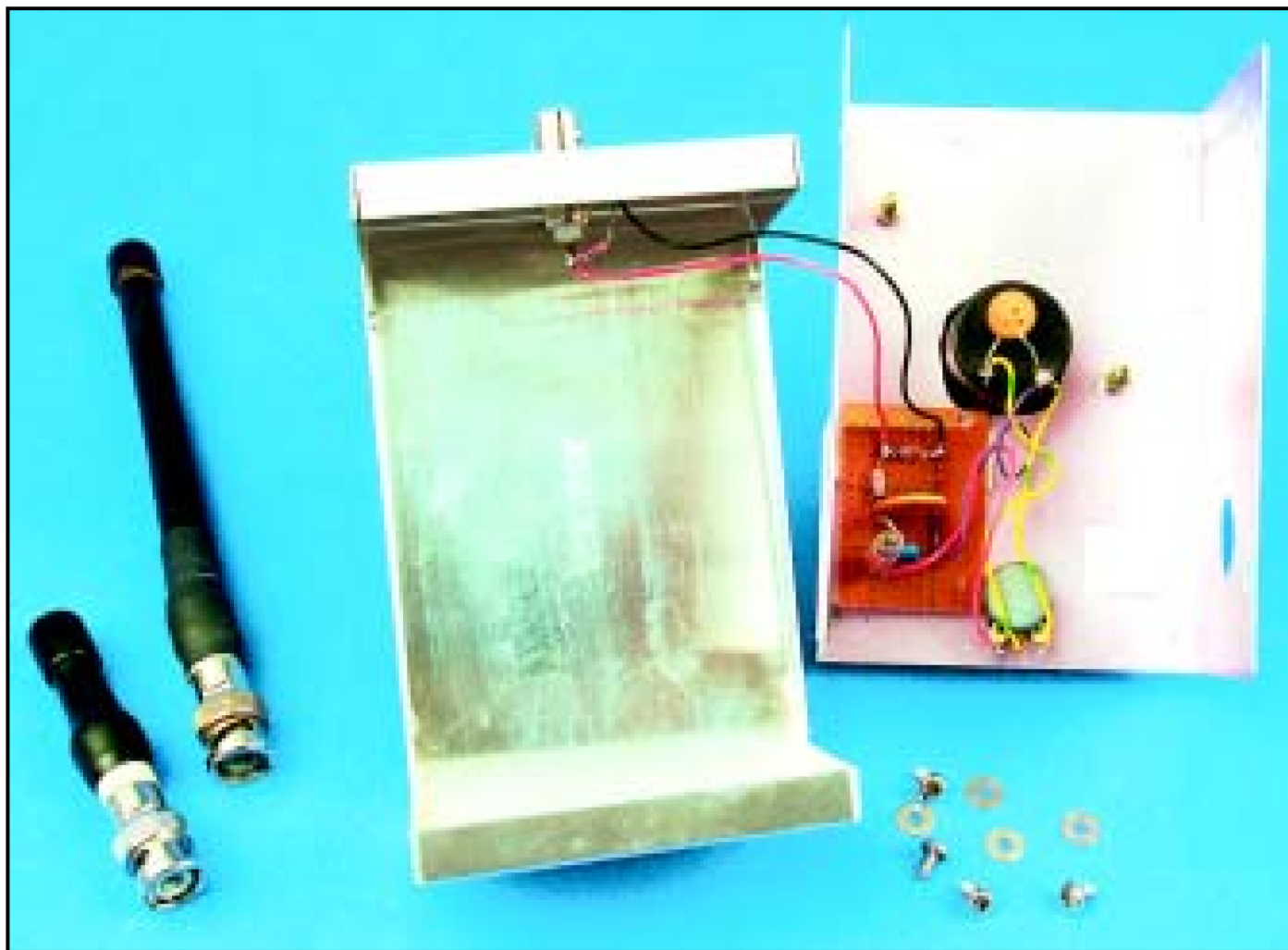
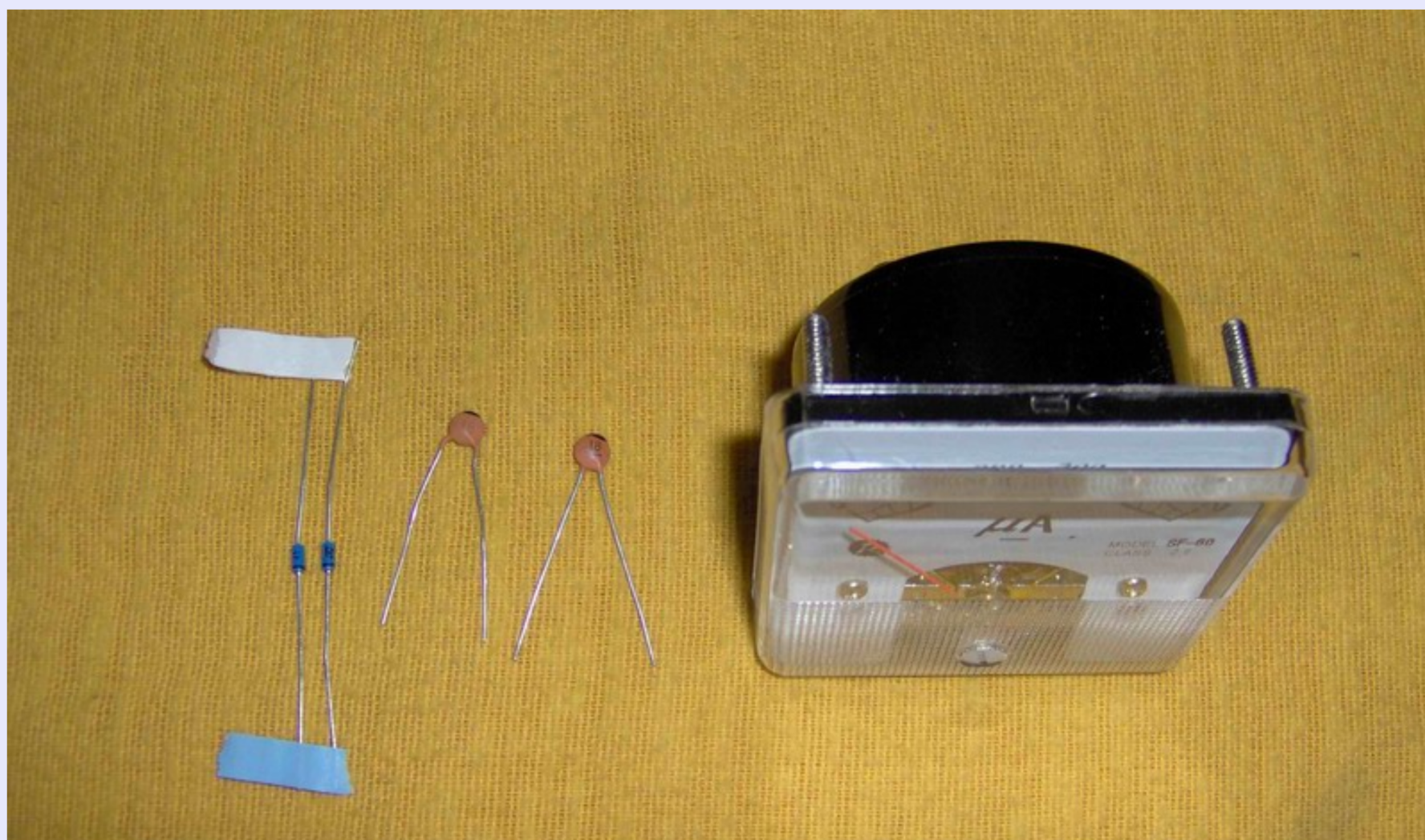
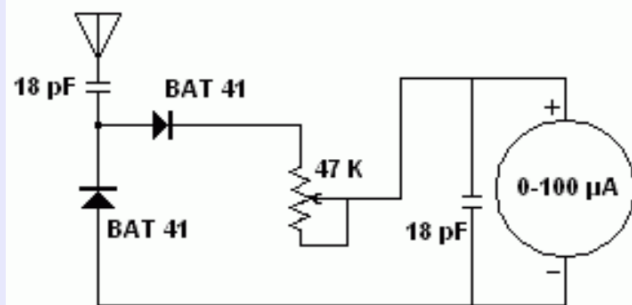
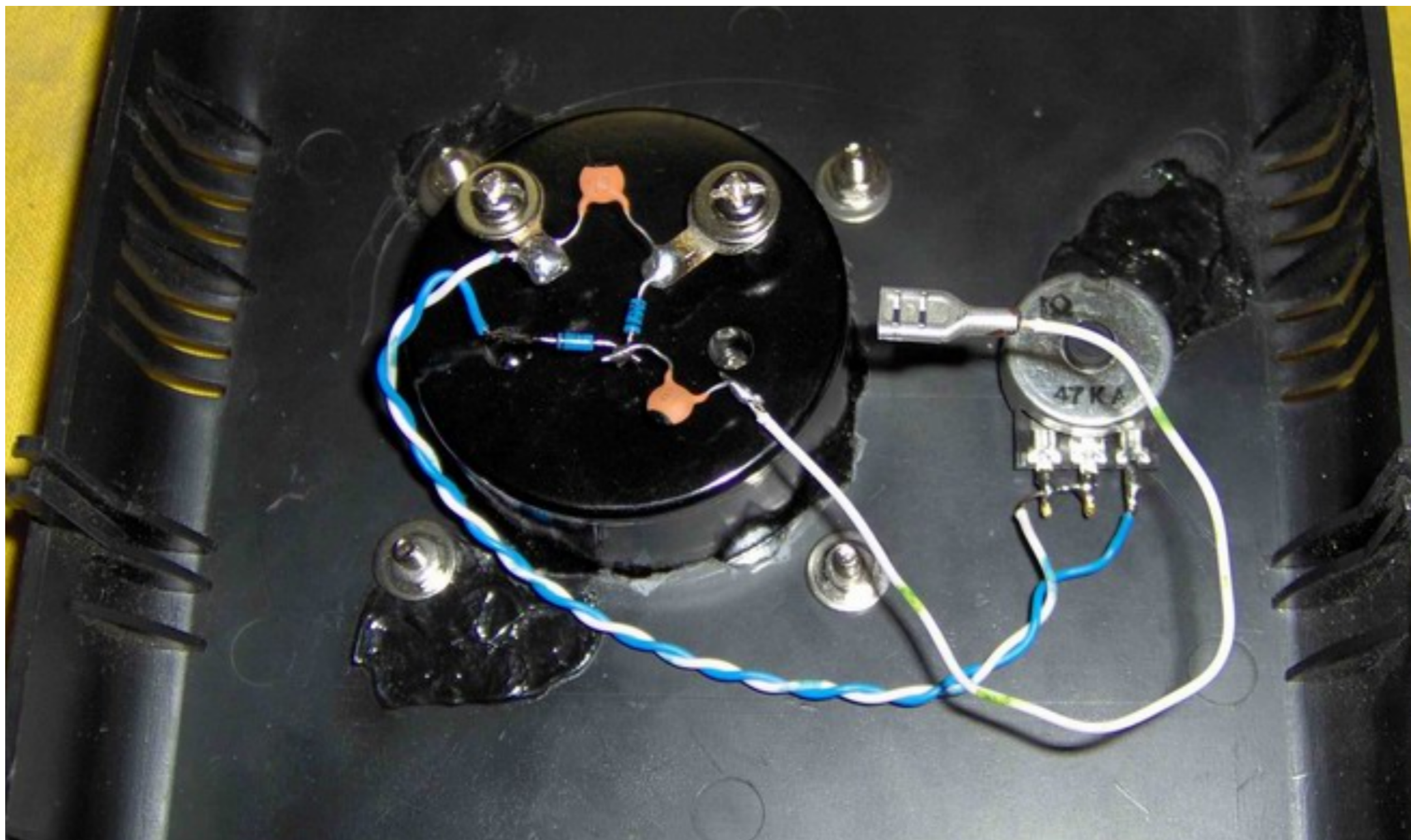


Figure 3—The case, circuit board and antennas for the field strength meter.

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02/08/2009



03/08/2009



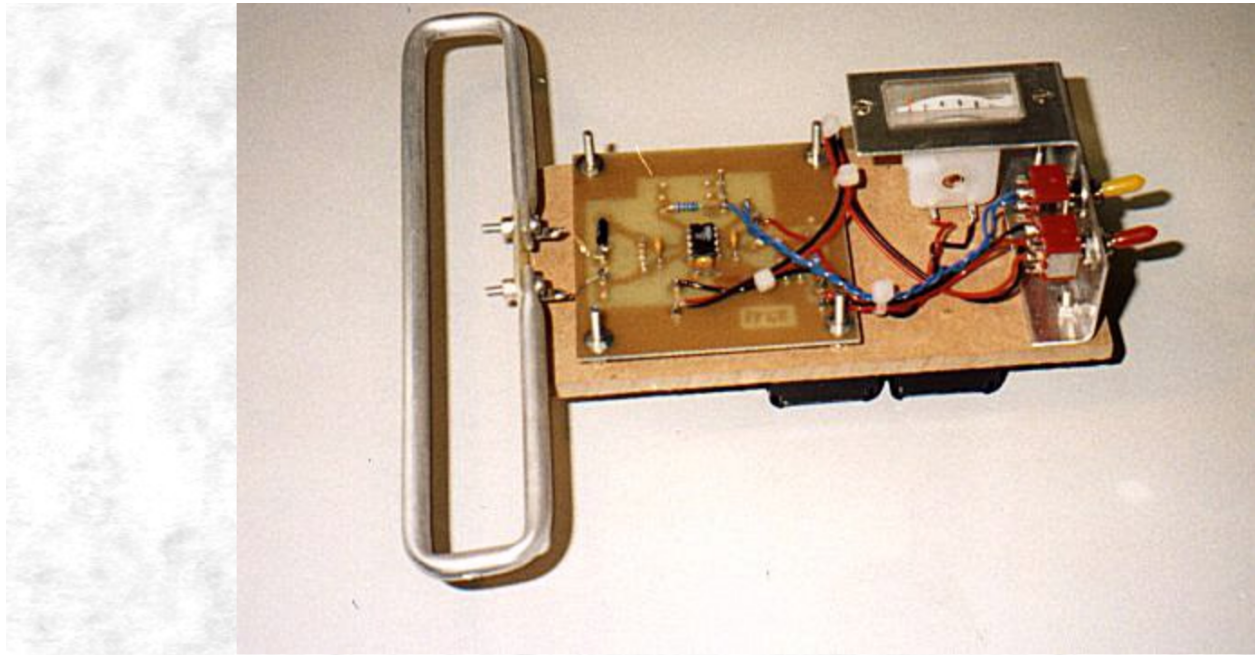
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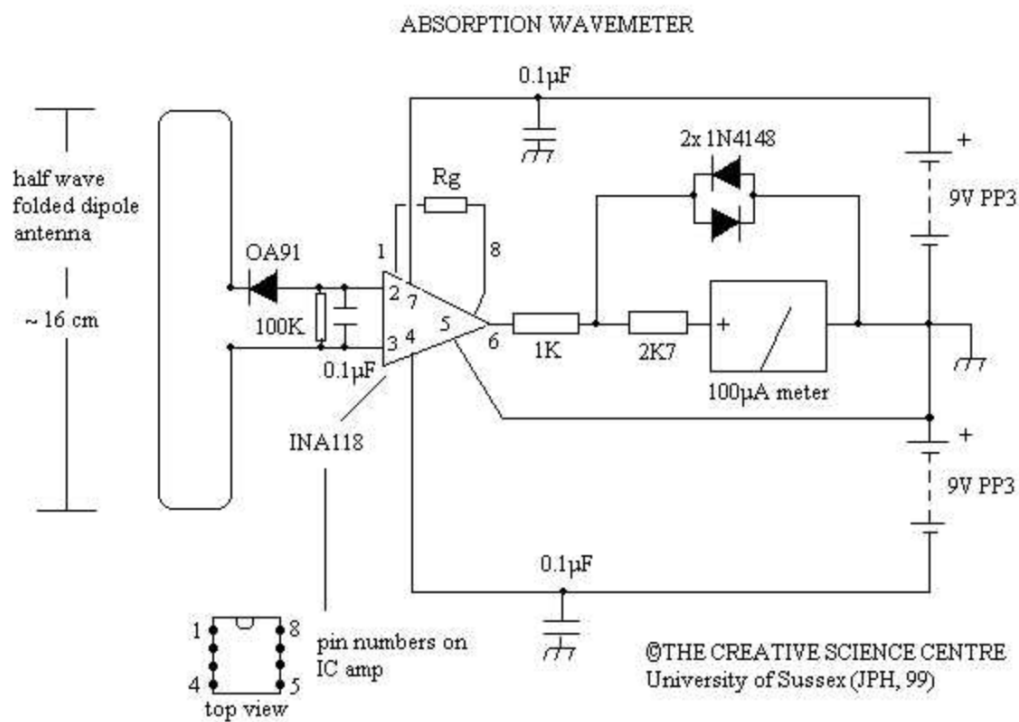
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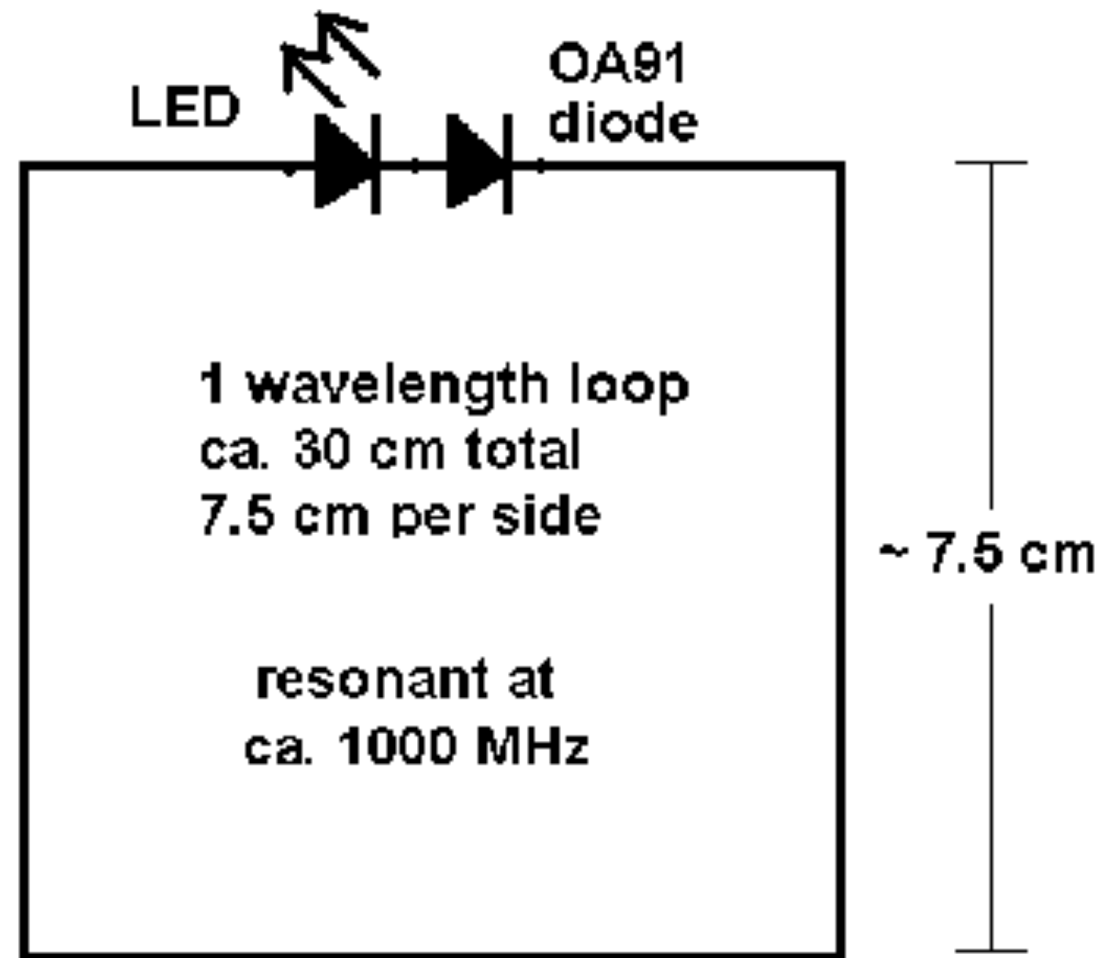


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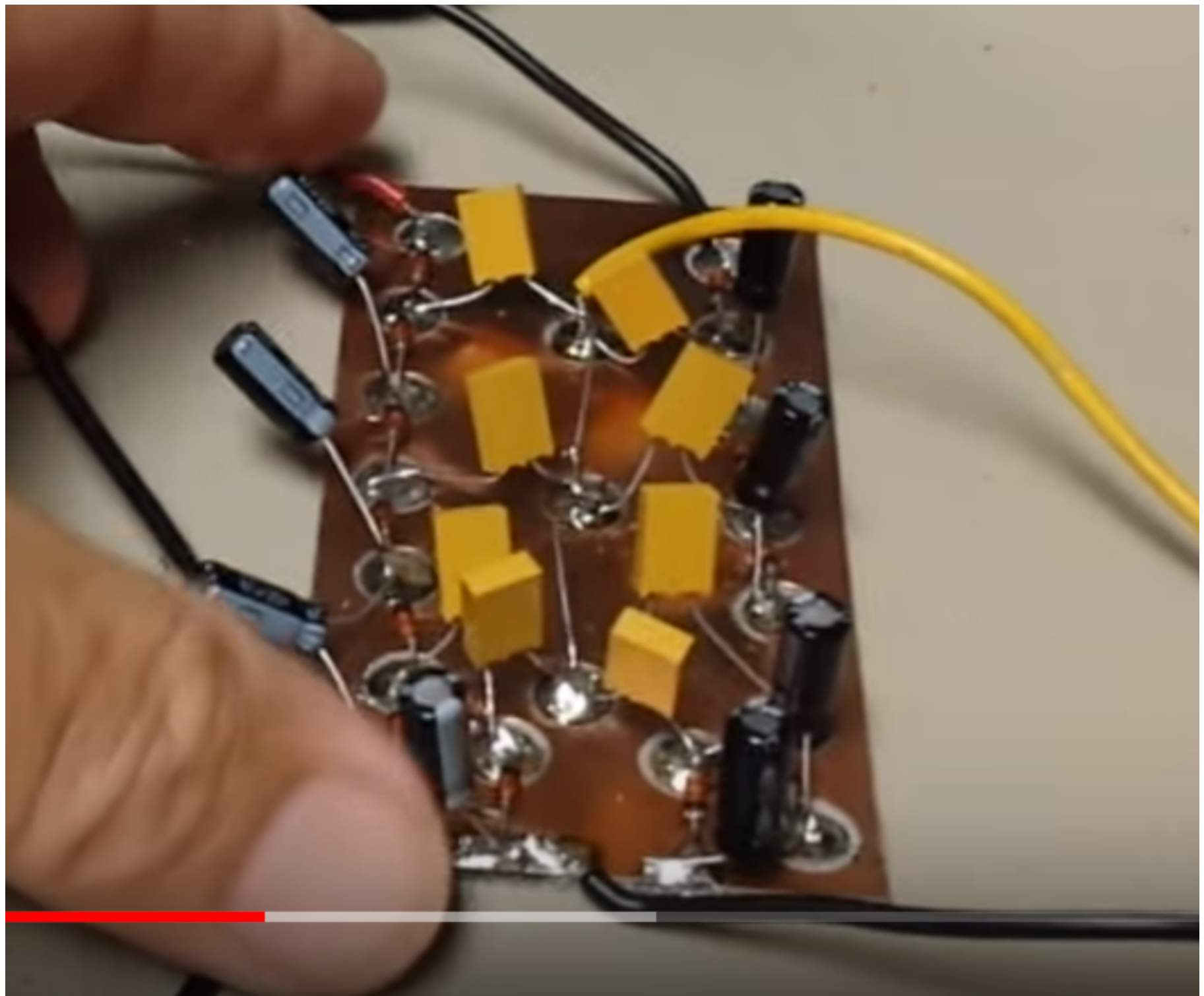


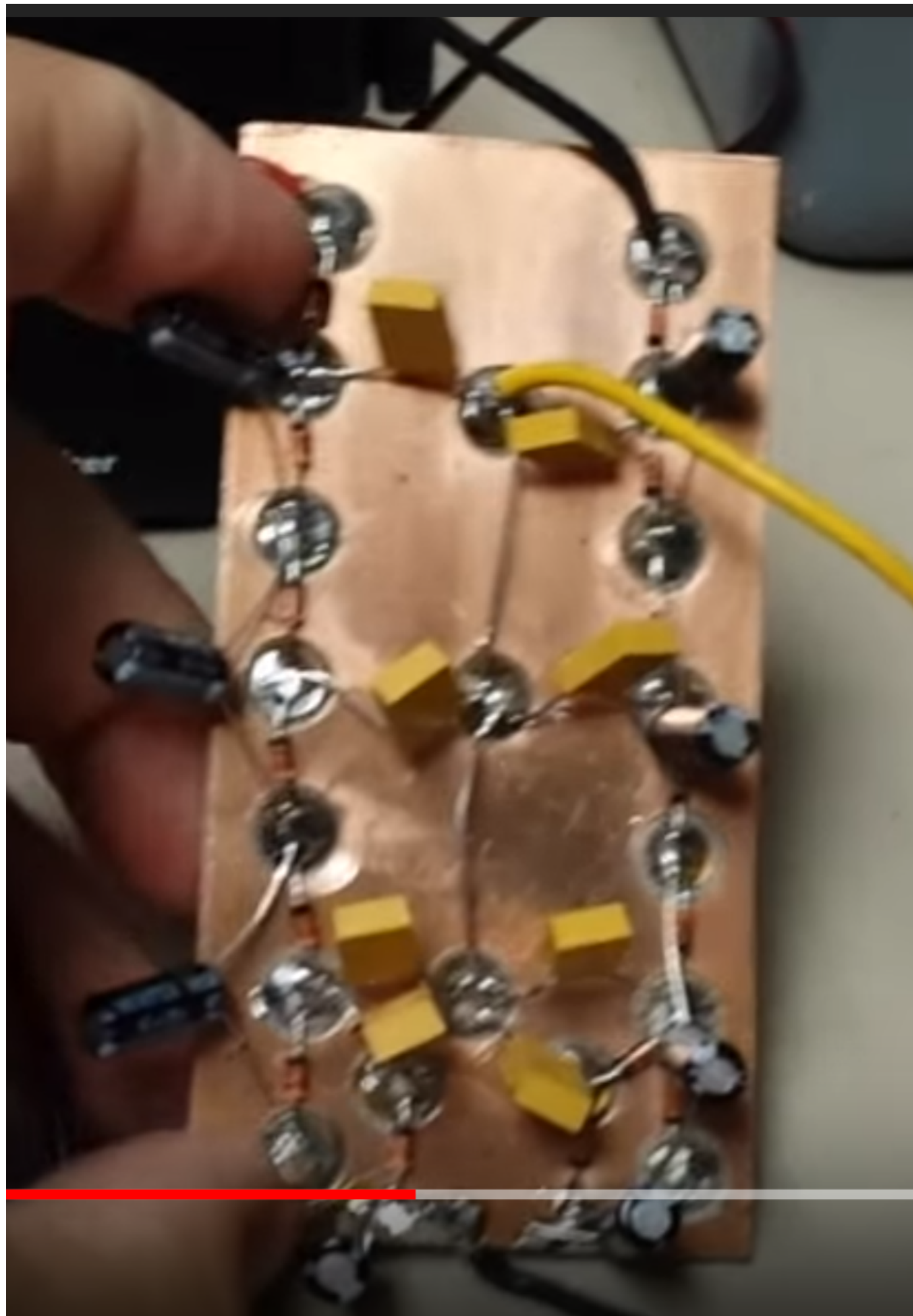
h of radio emissions and so this instrument is an essential item for investigating the mobile phones. In principle an absorption met
 l so measurements can only be made very close to the transmitter. The circuit described below incorporates an amplifier whose gai

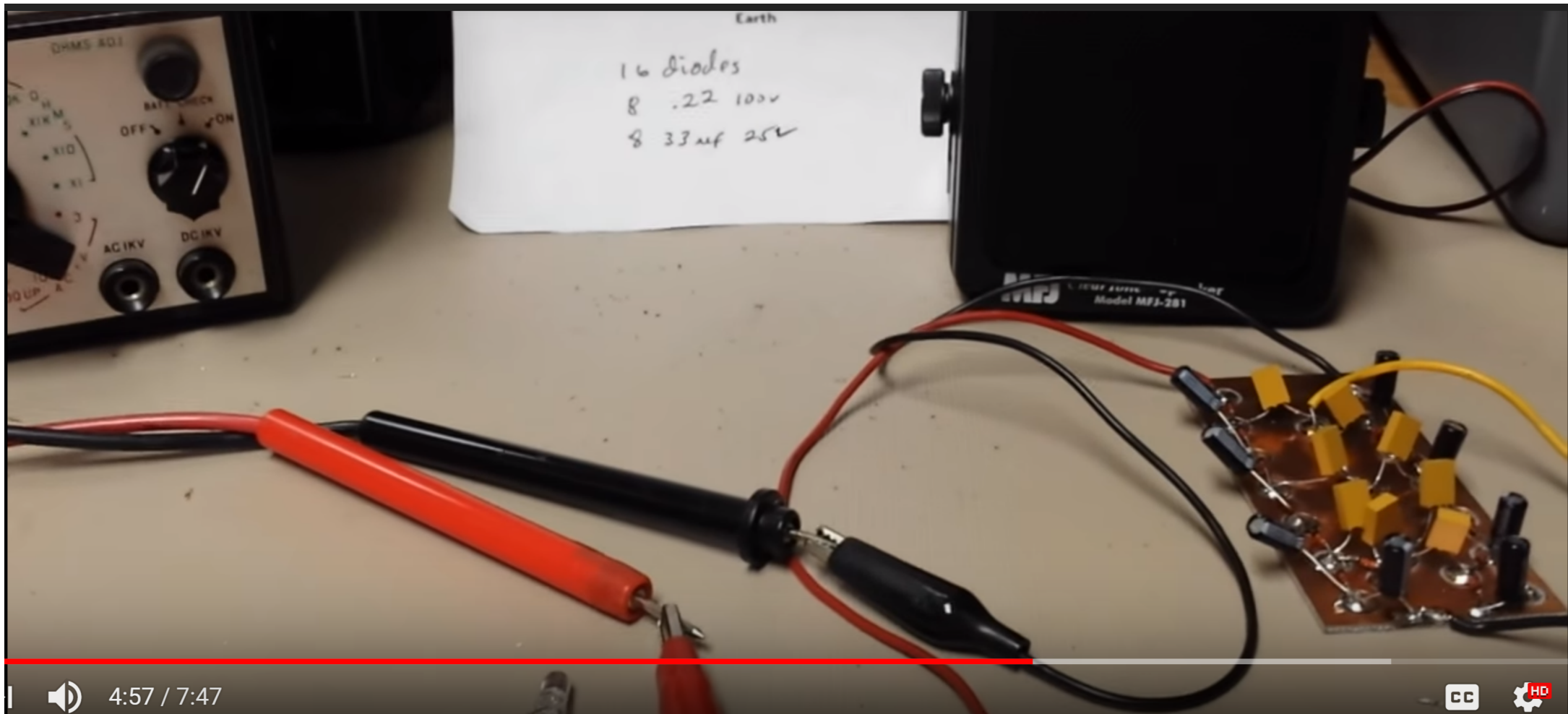


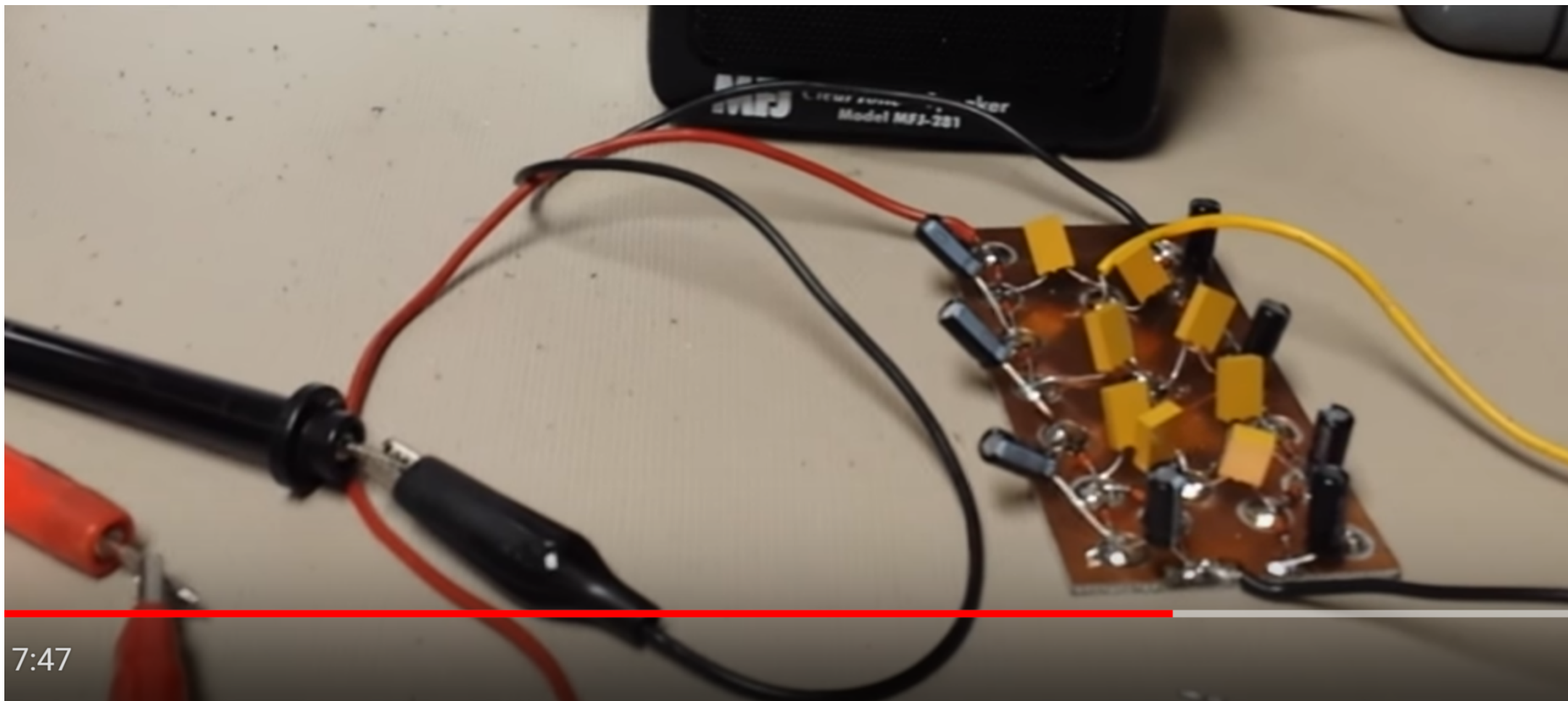




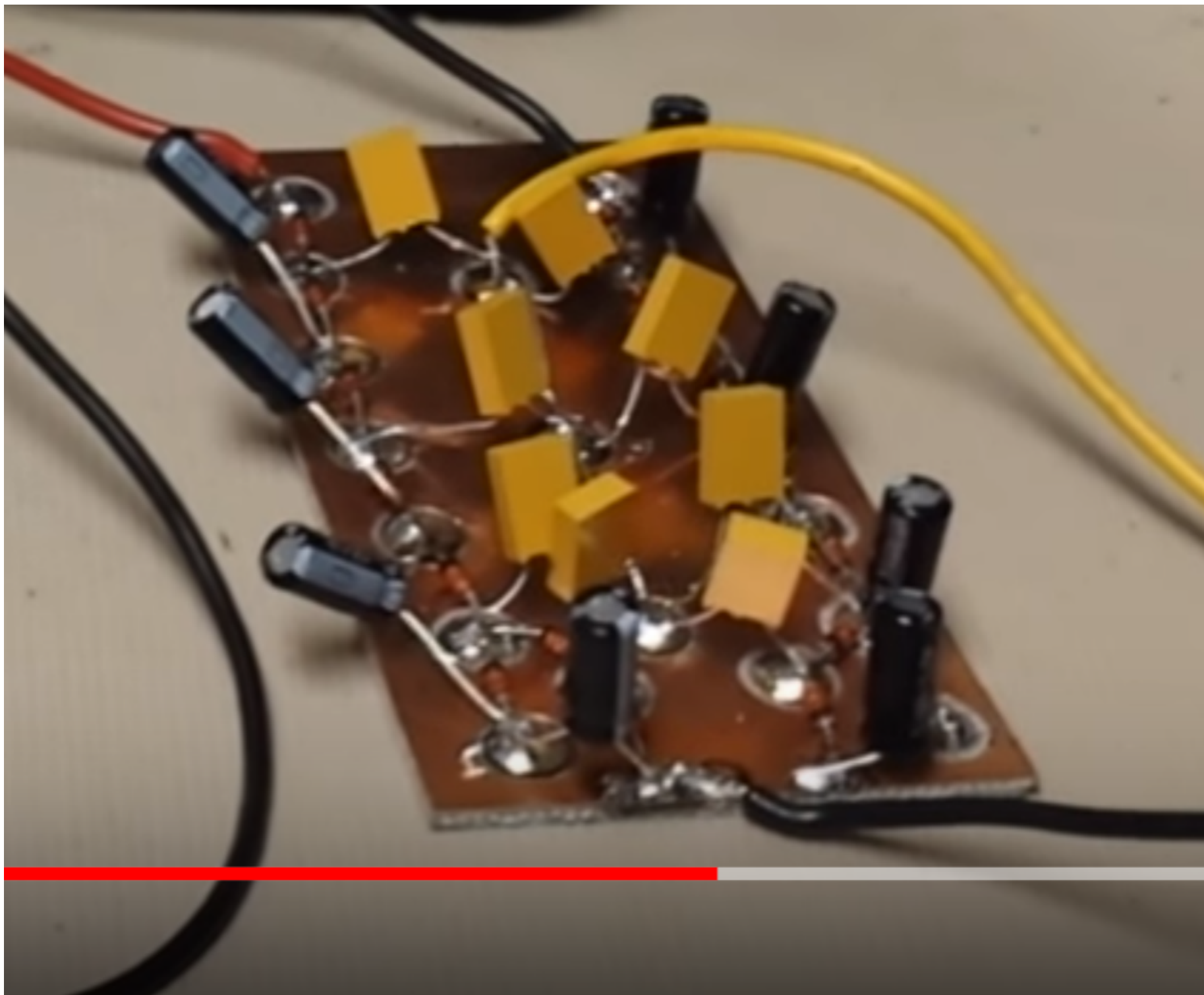


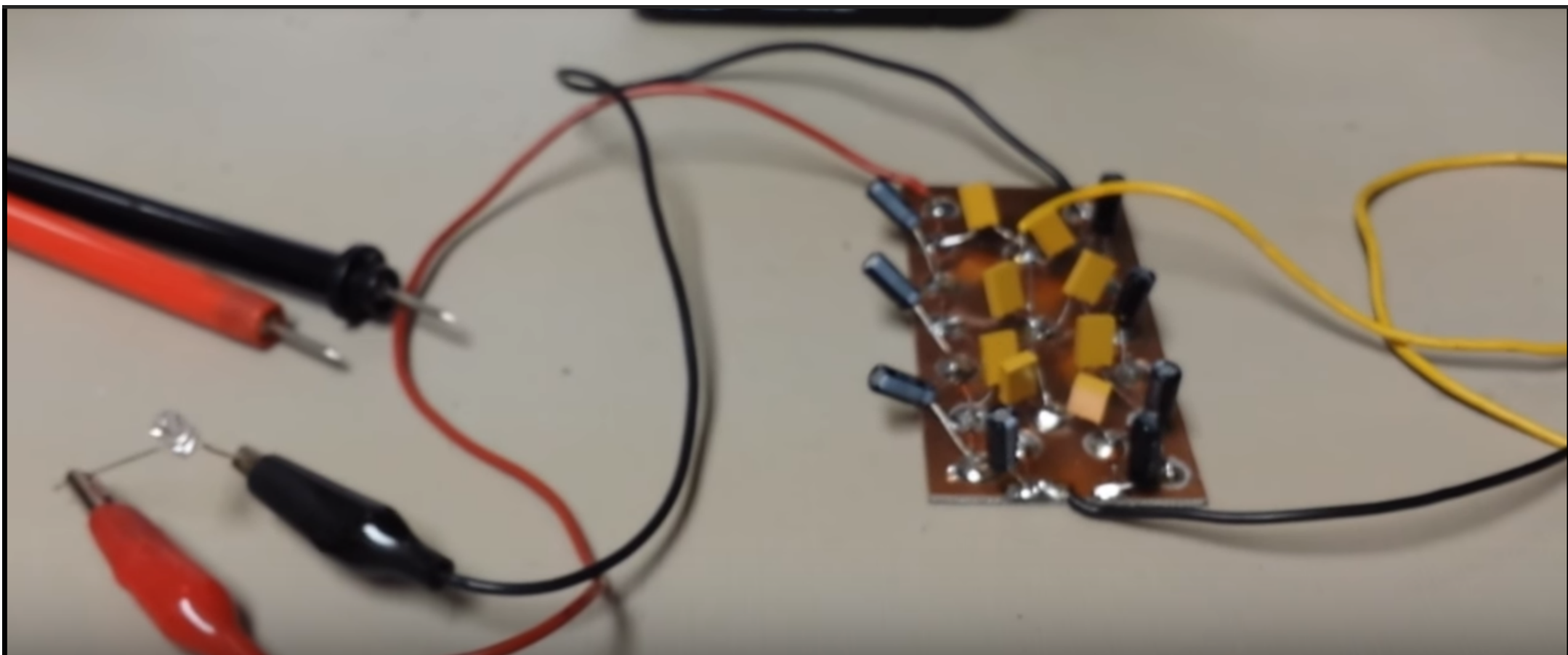


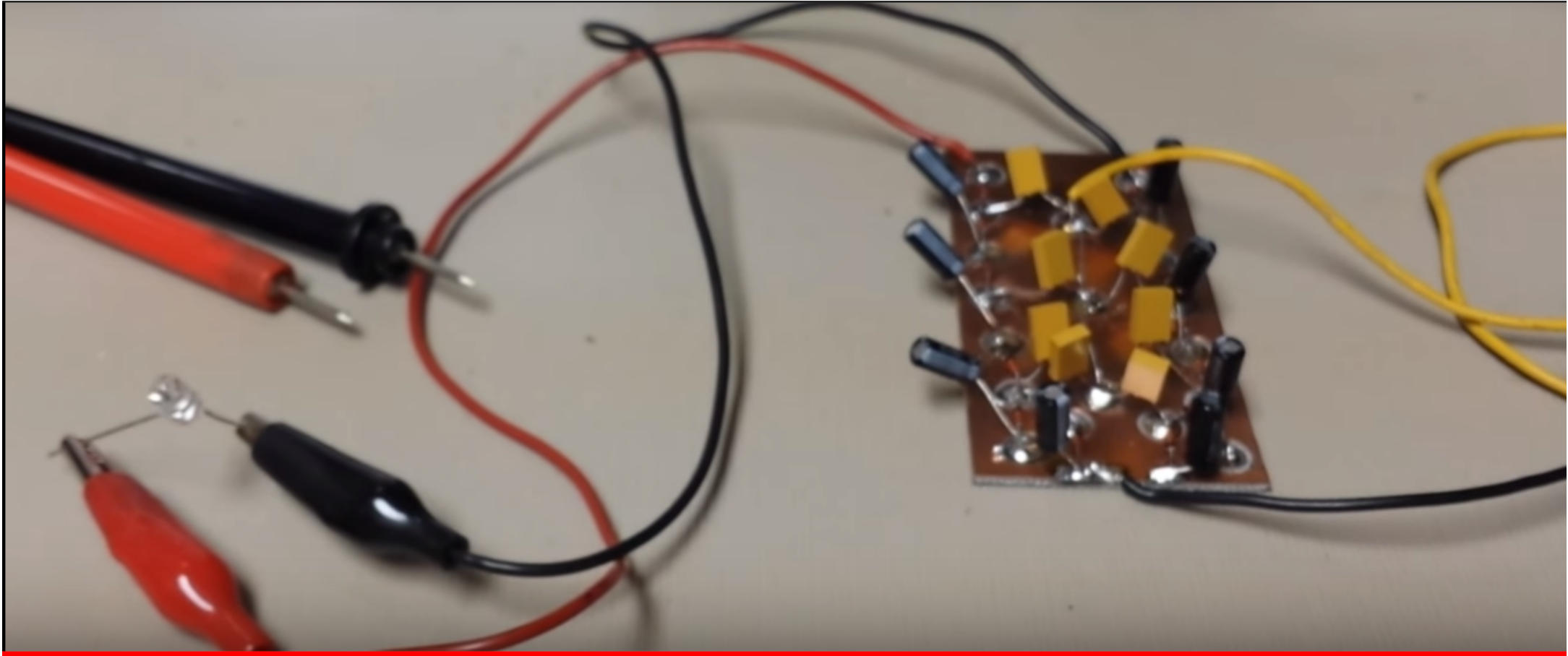




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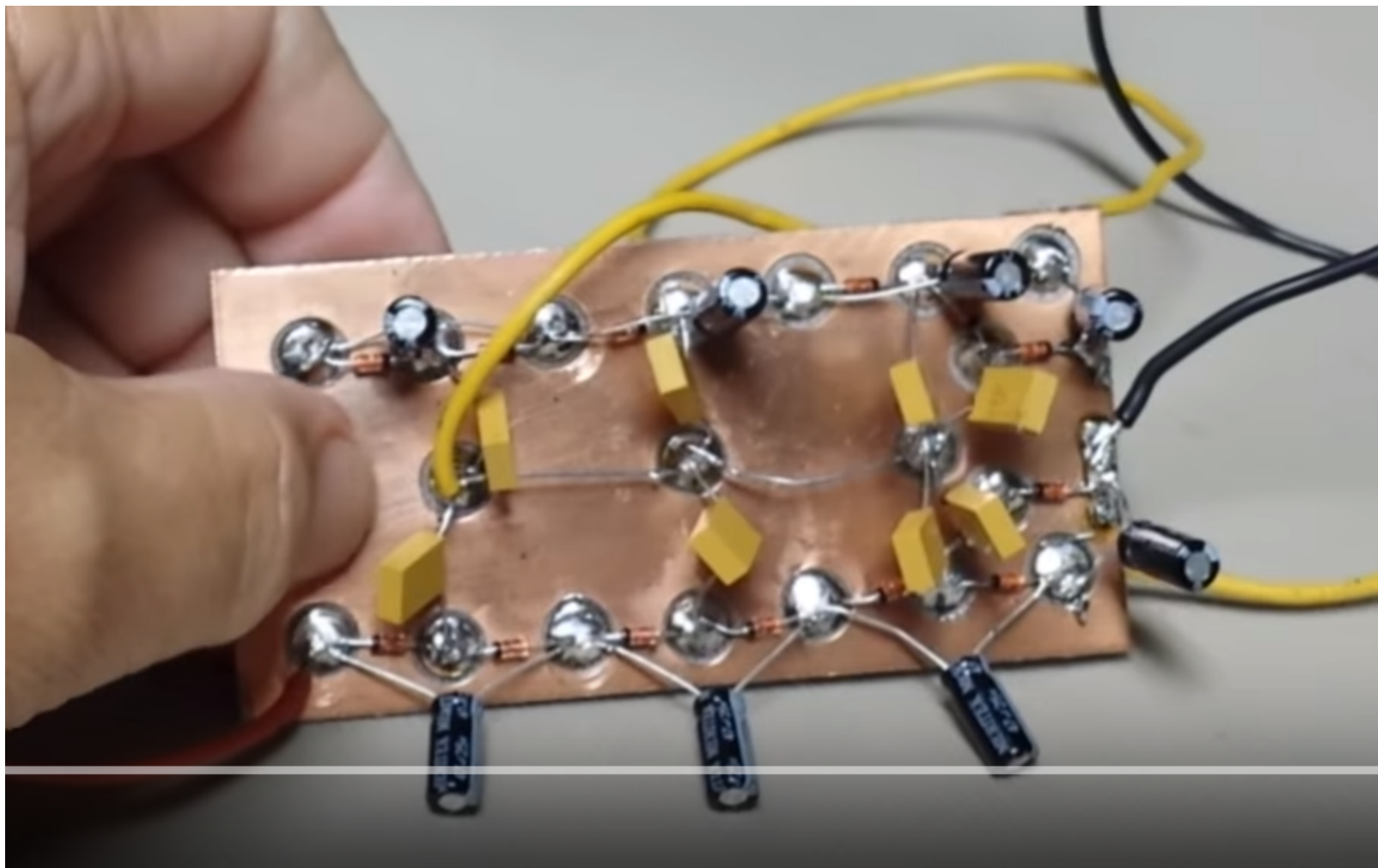


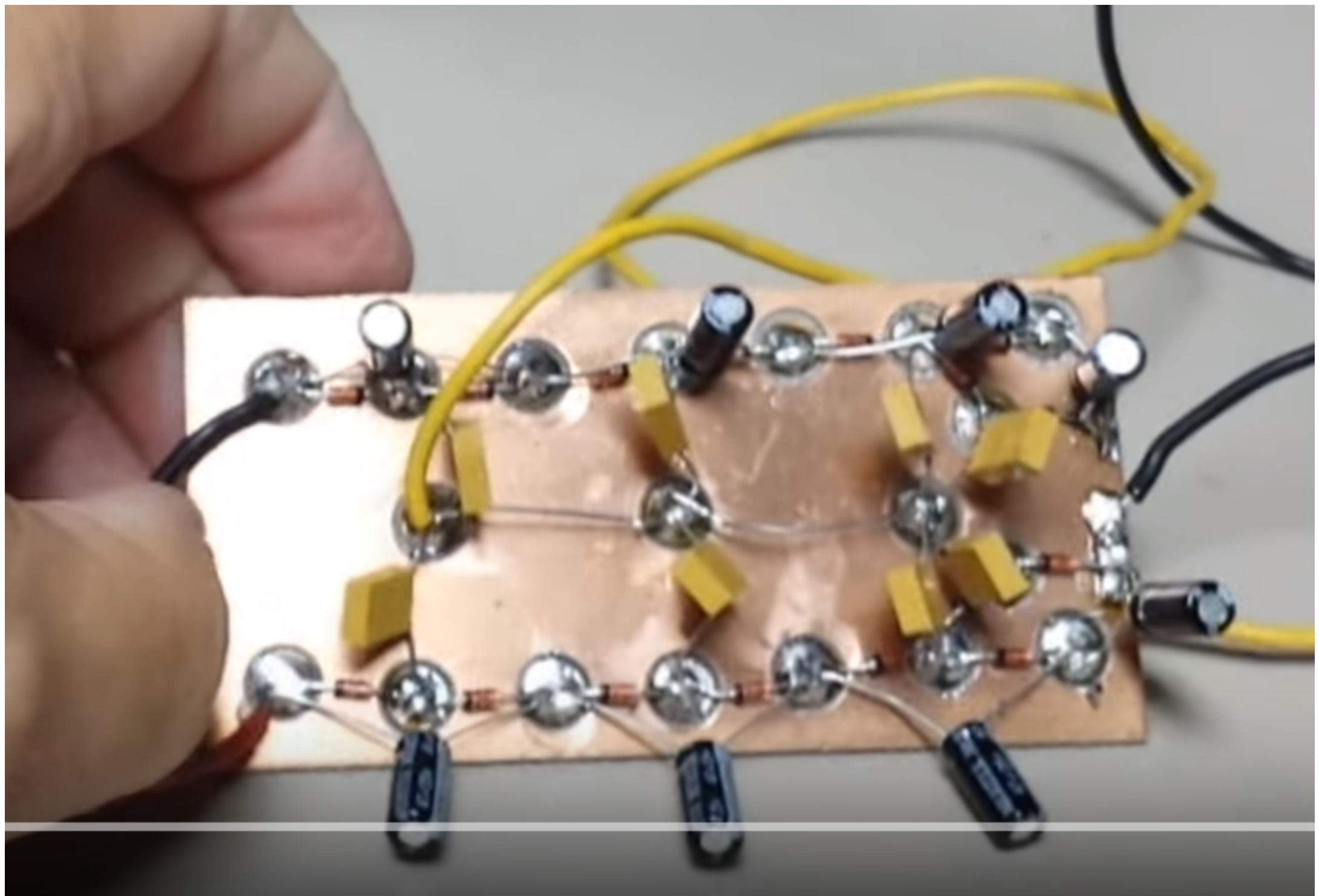


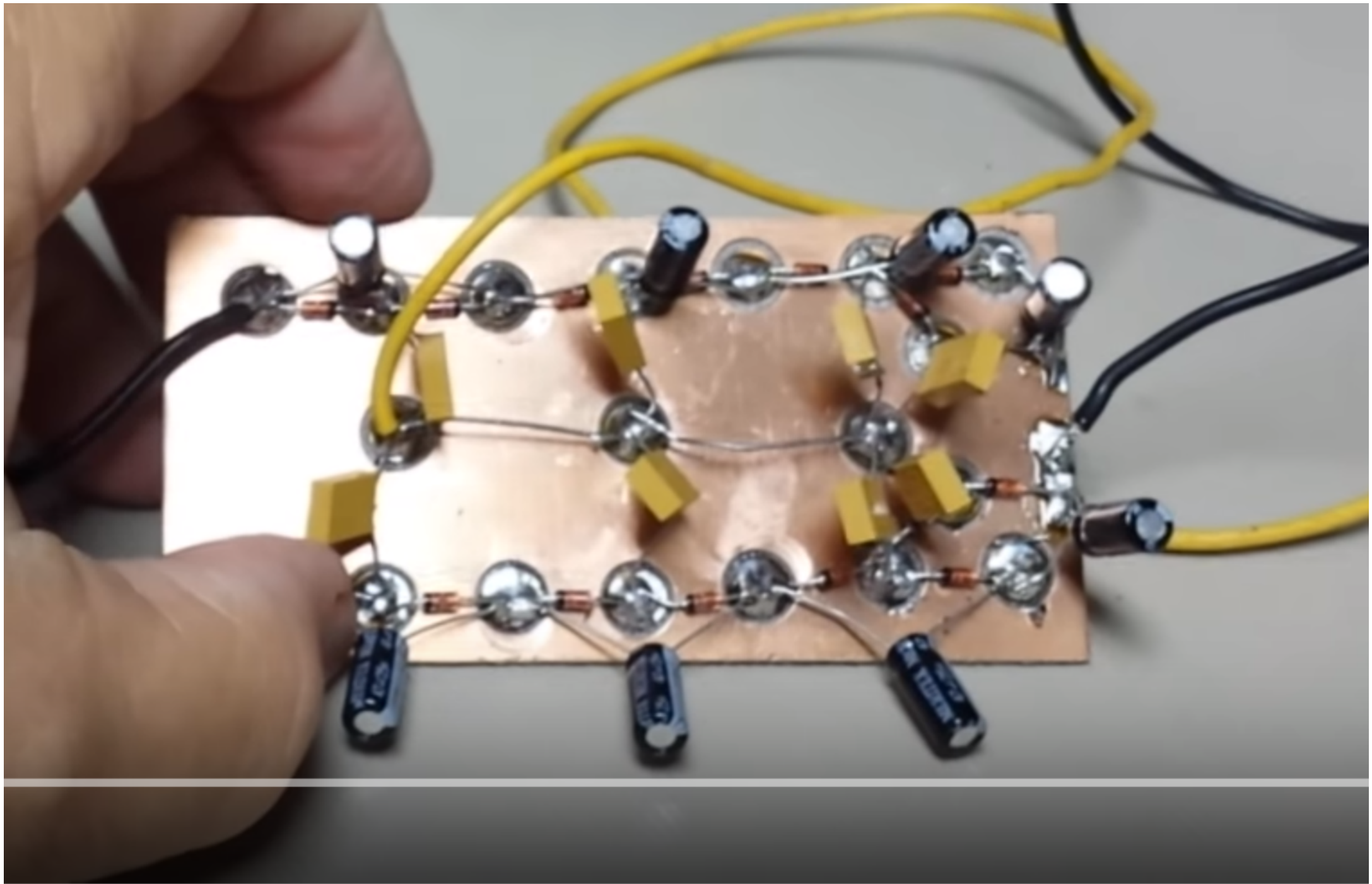
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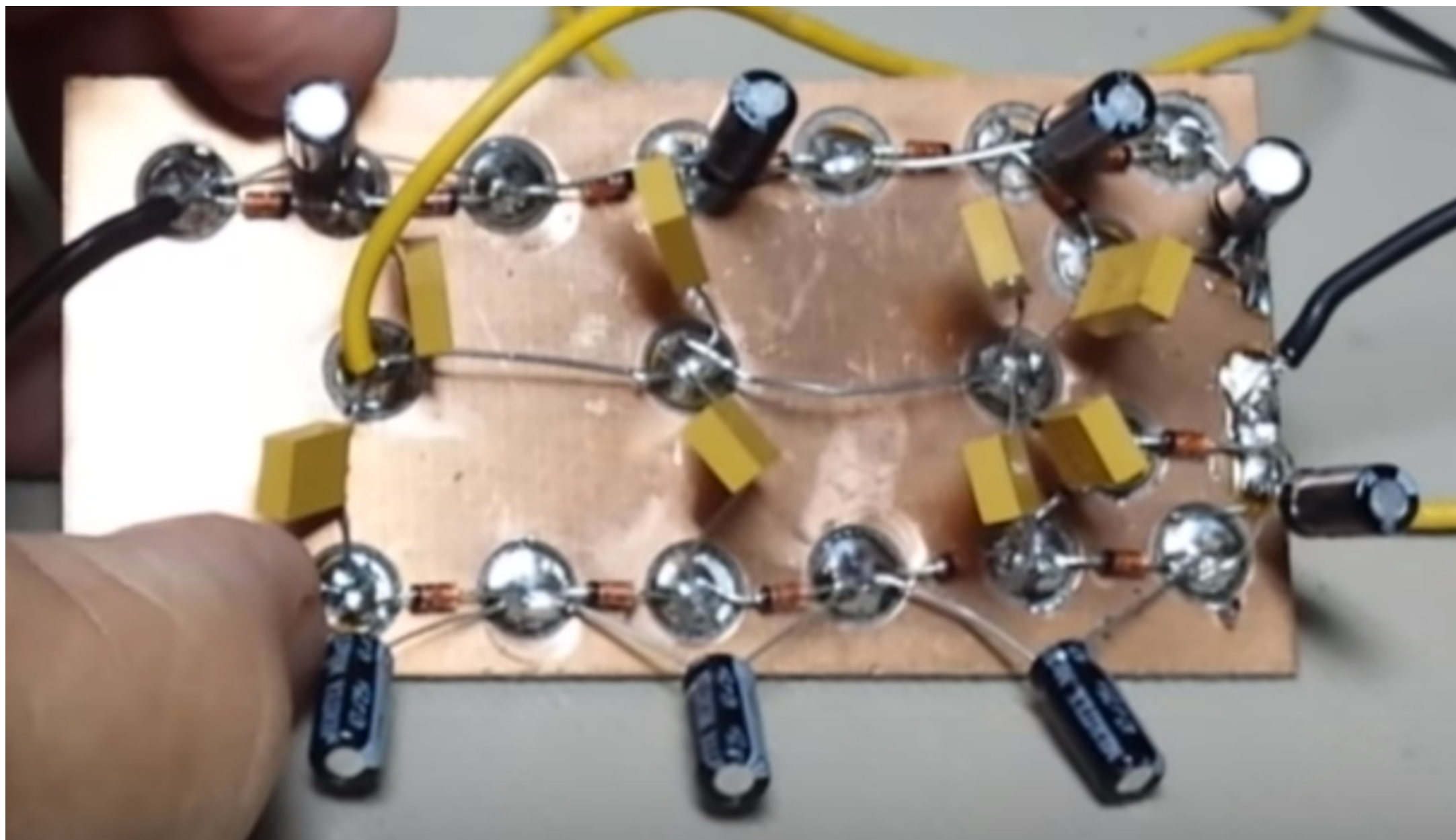


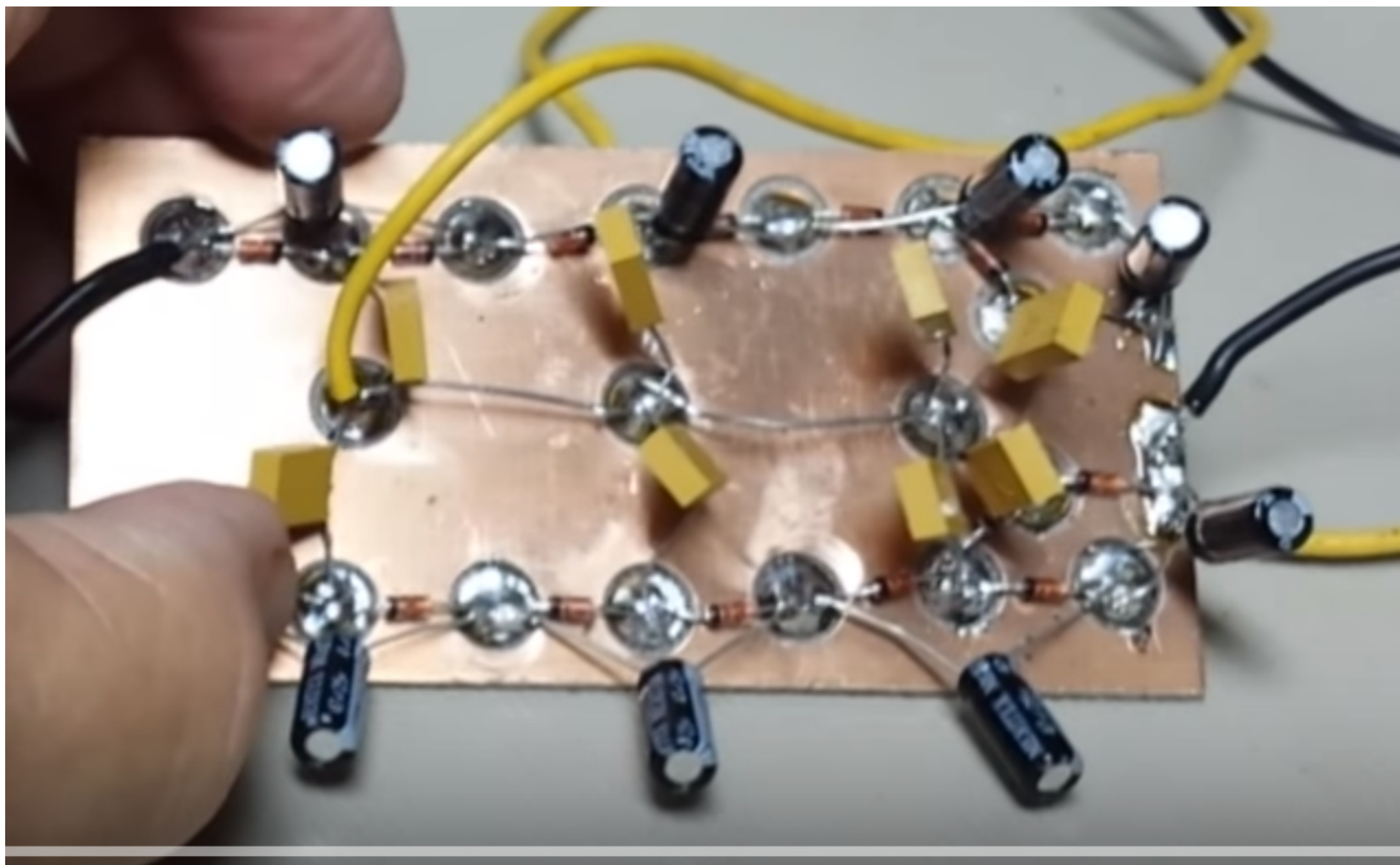
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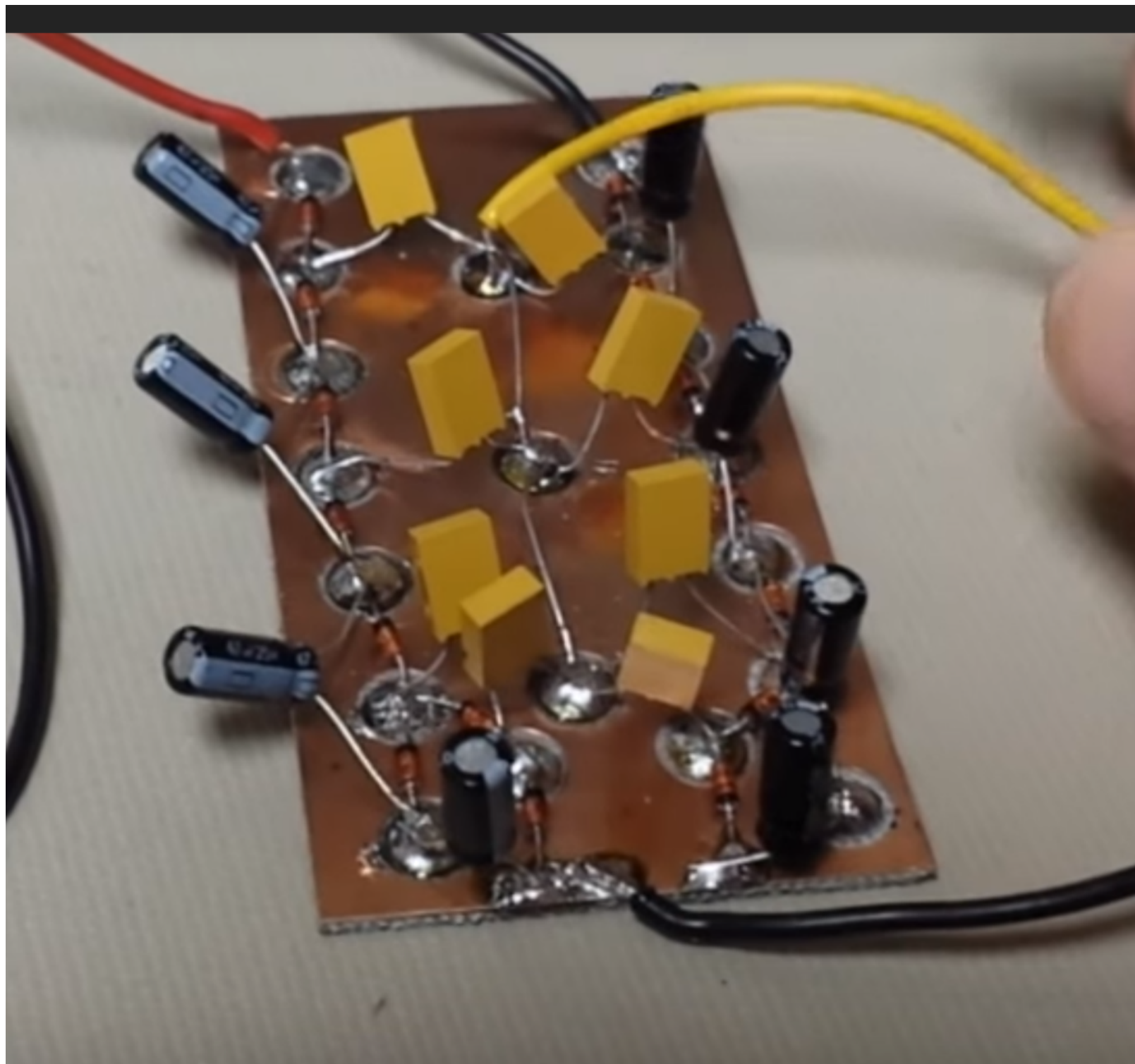


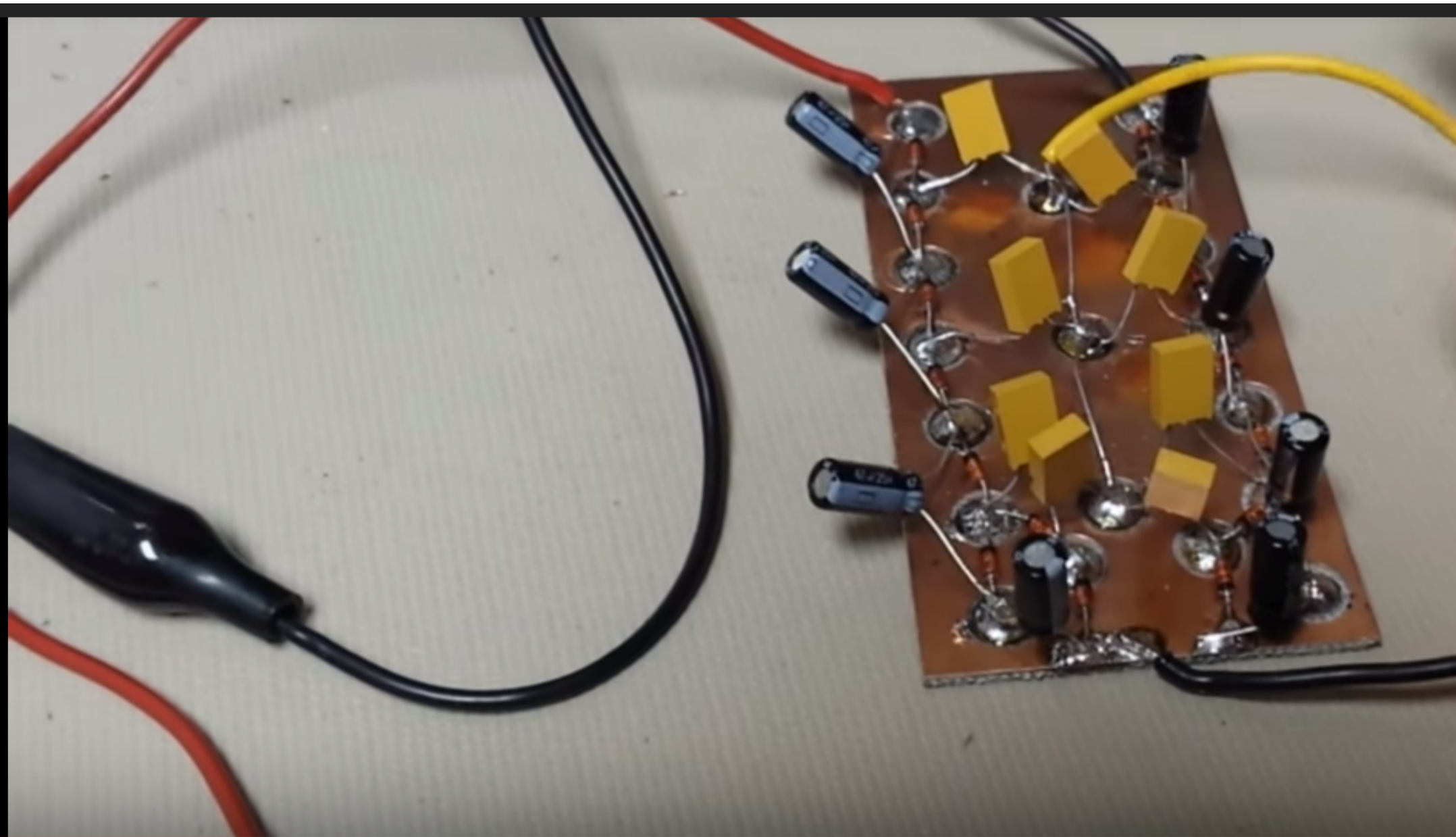




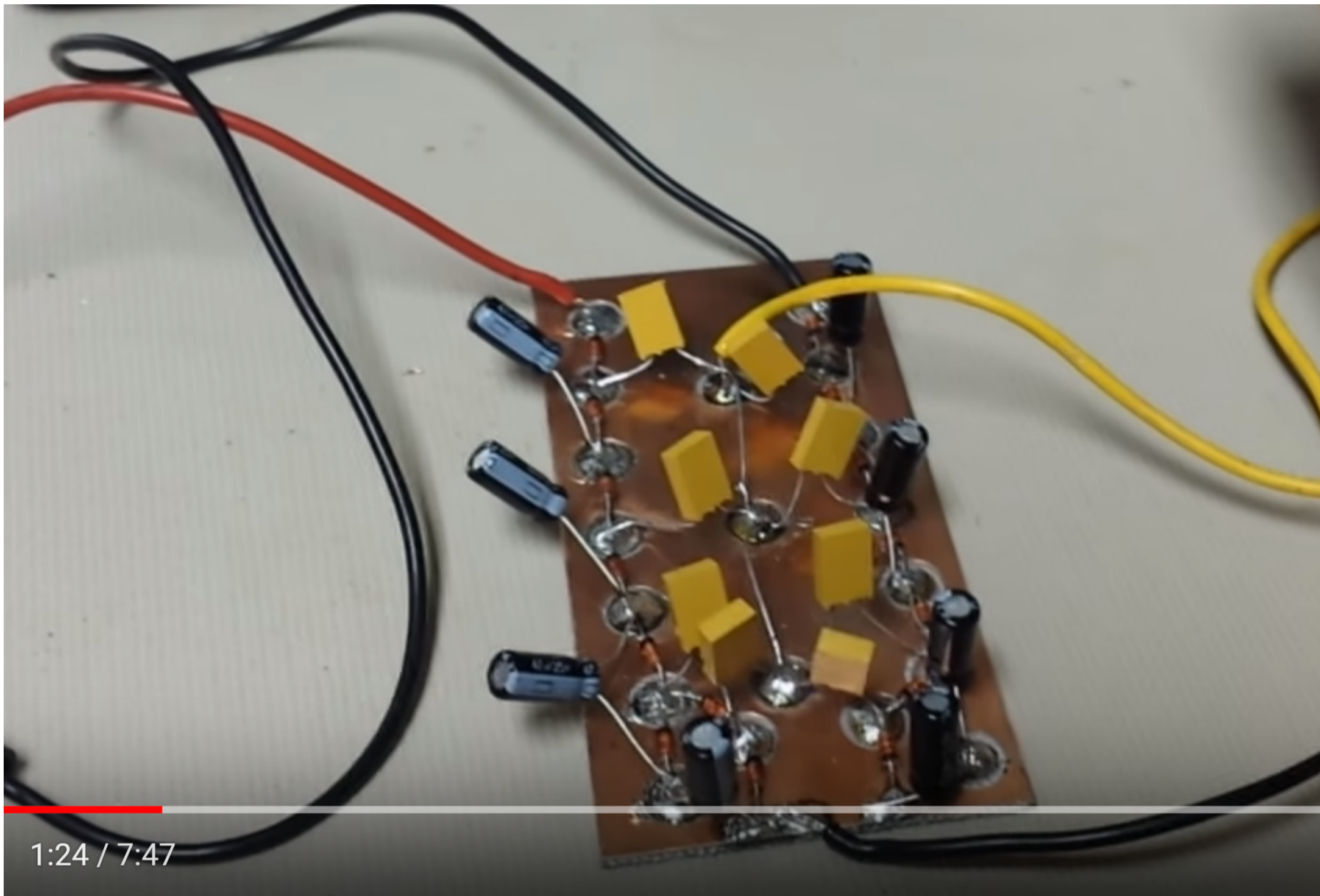




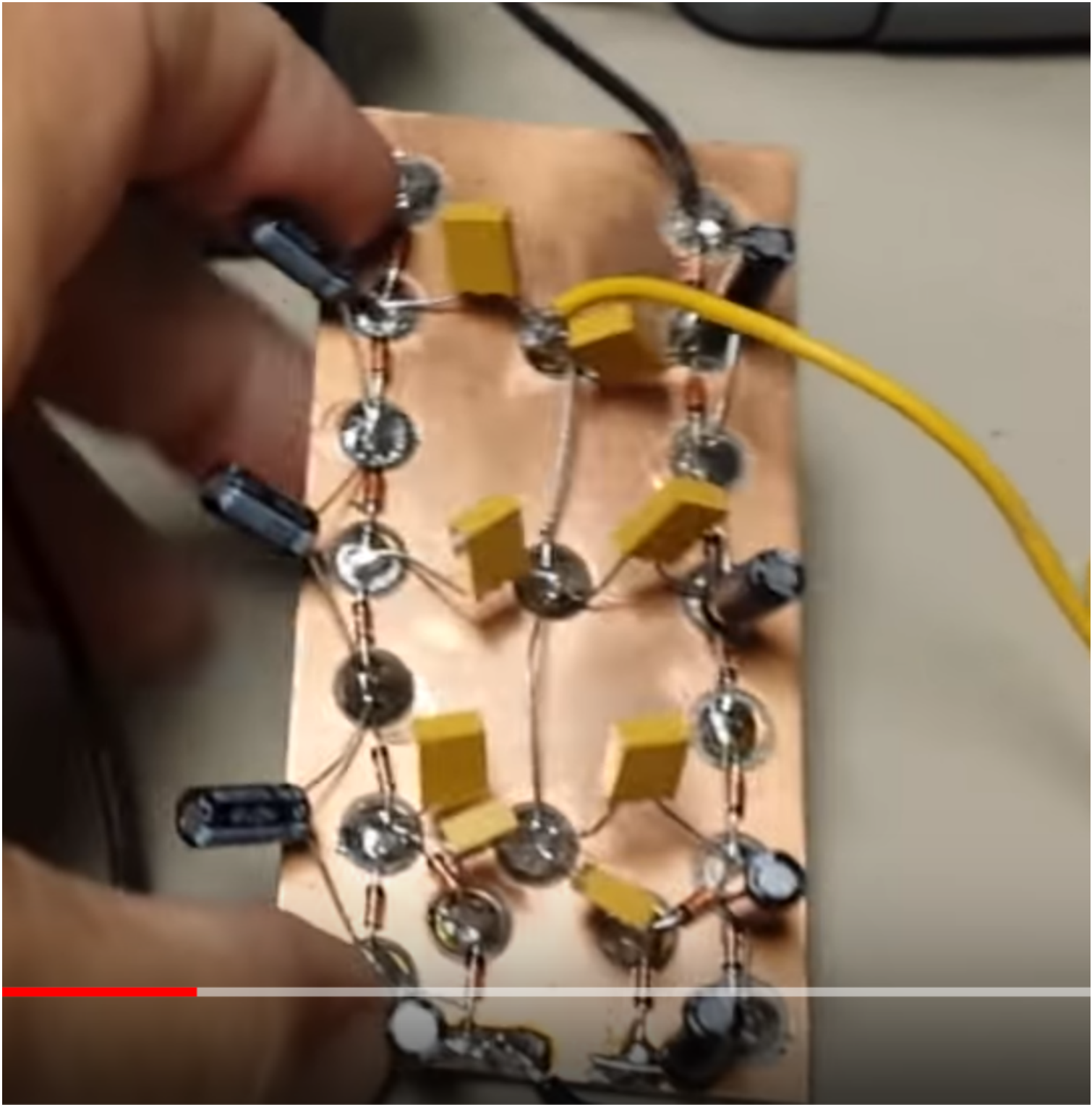


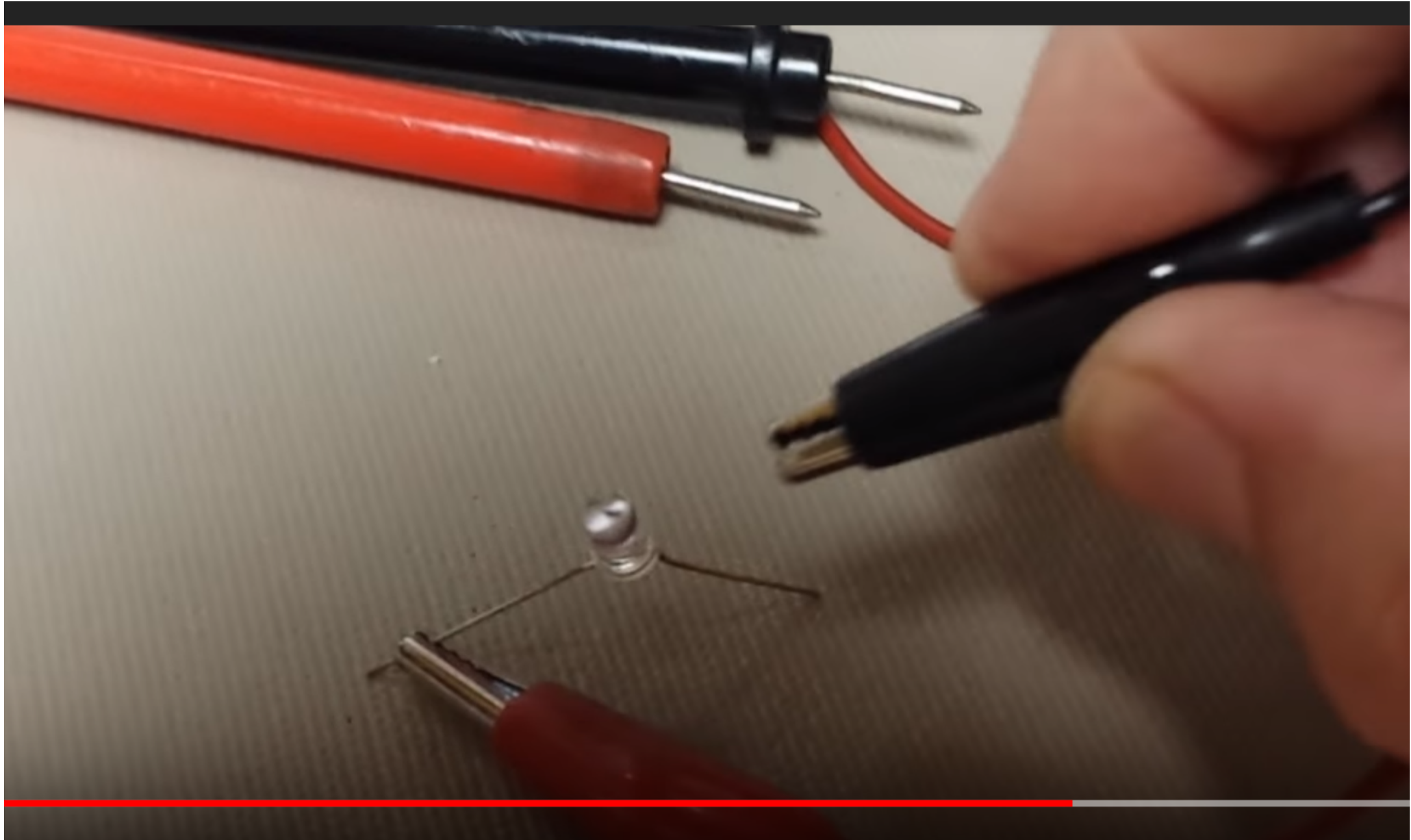


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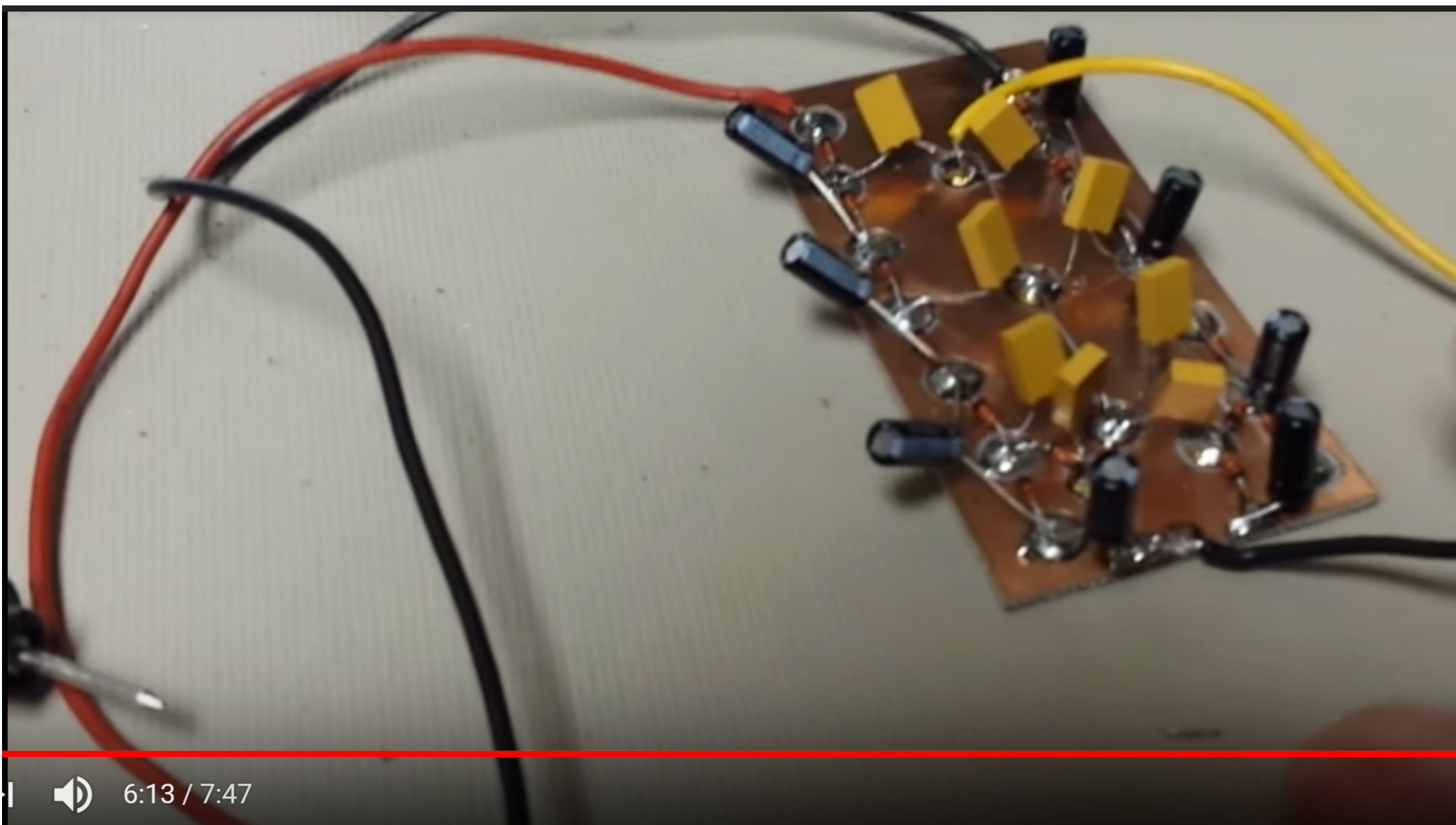


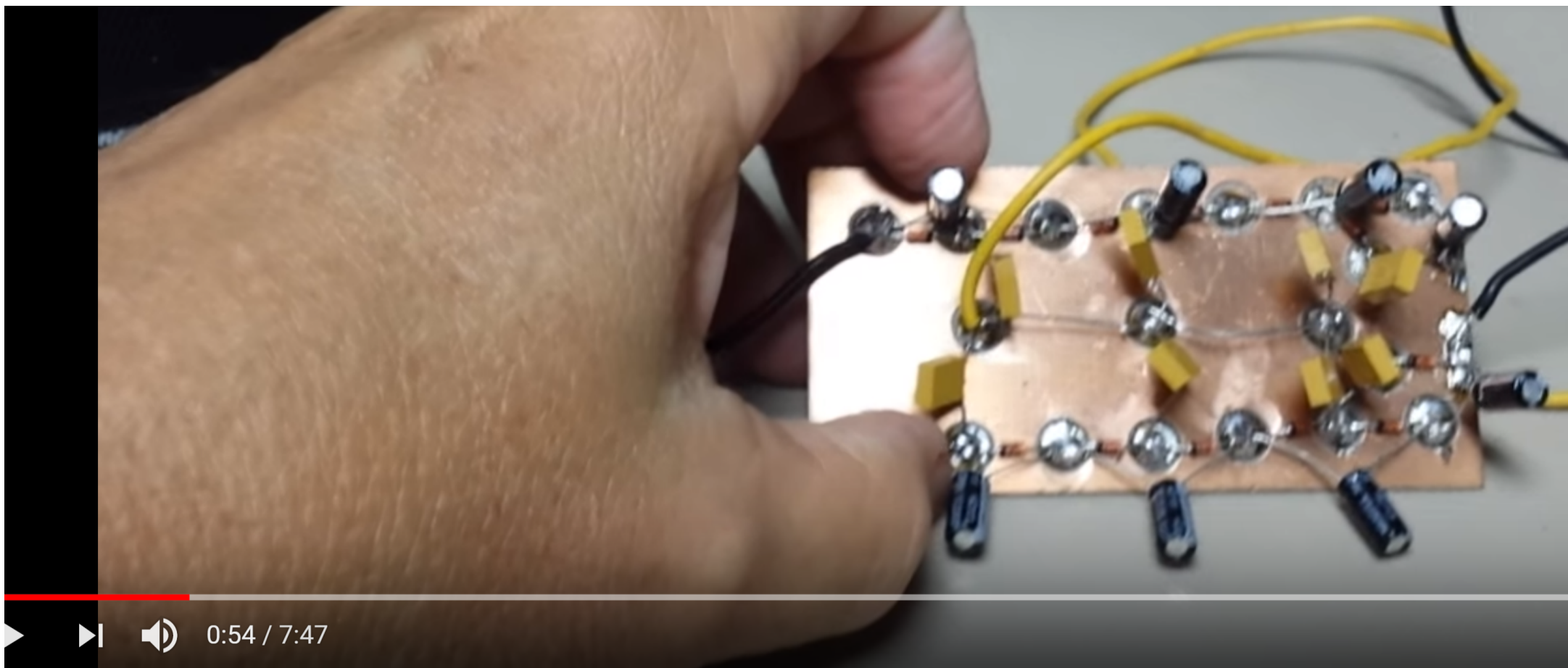
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Free Electrical Energy From Invisible Radiation

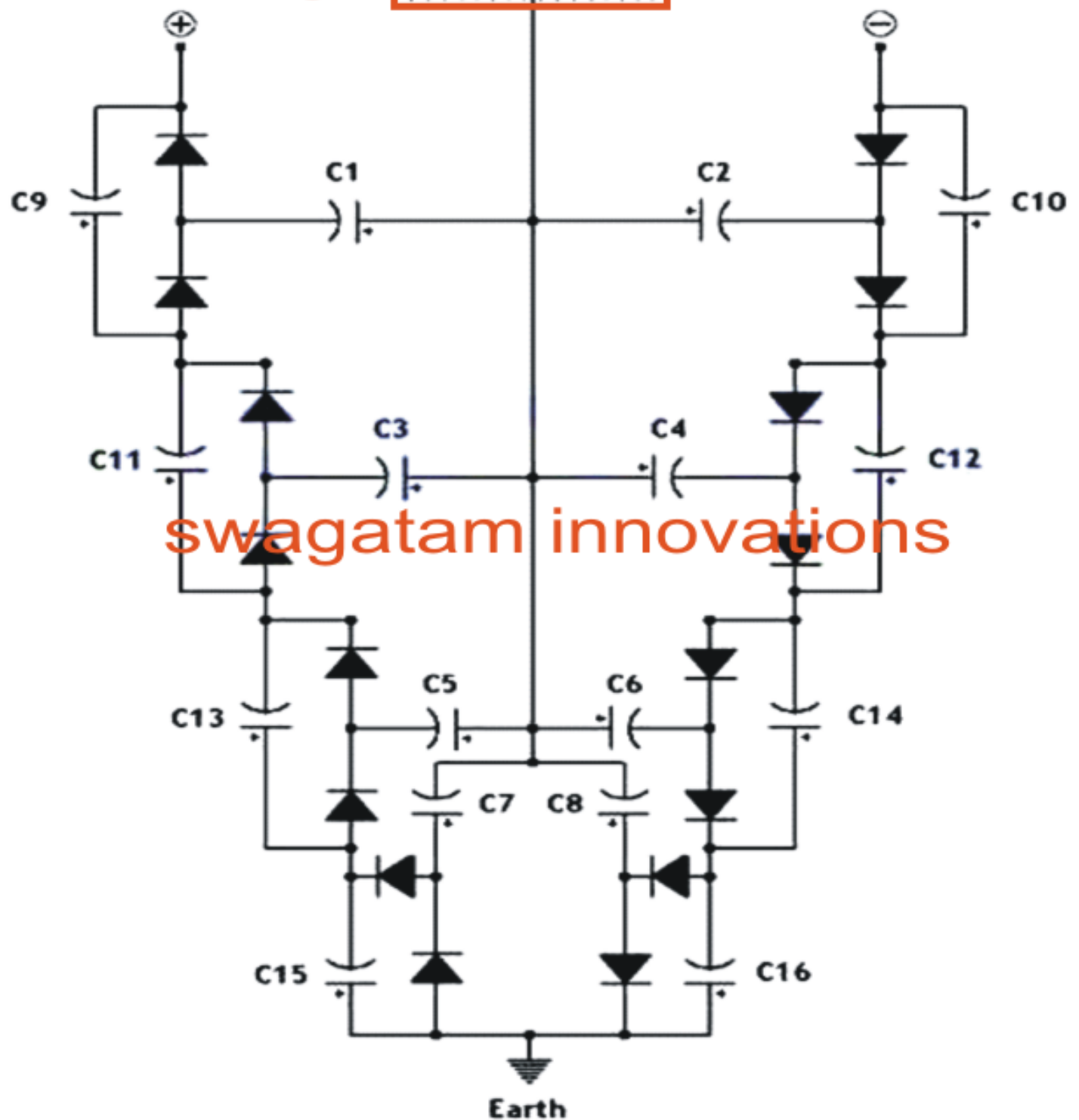
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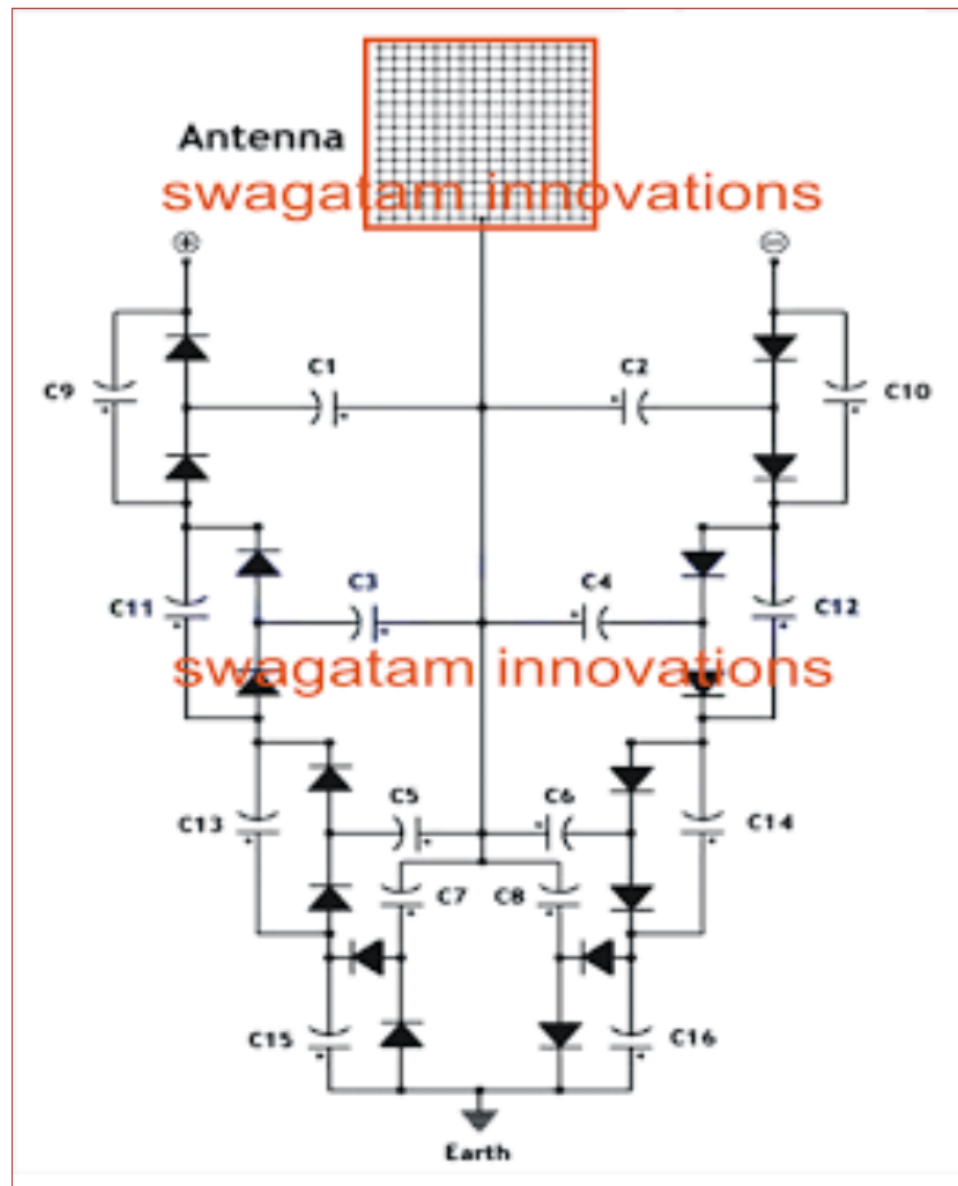
Free Energy Vs 1

Antenna

swagatam innovations



Circuit Diagram

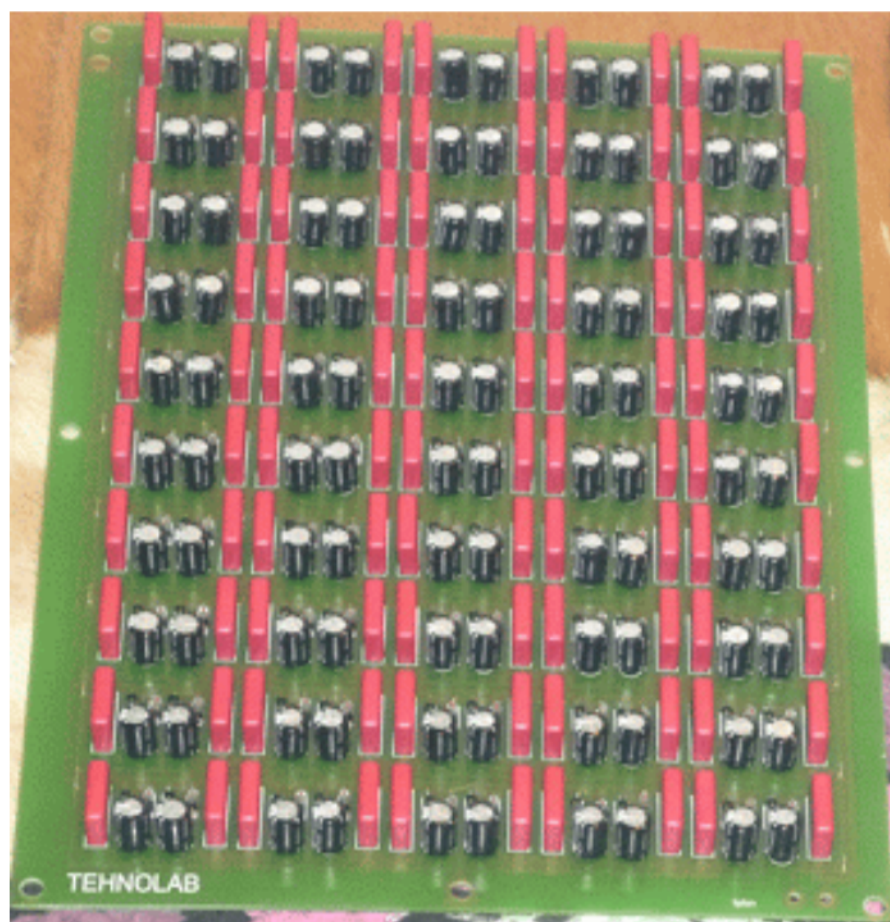
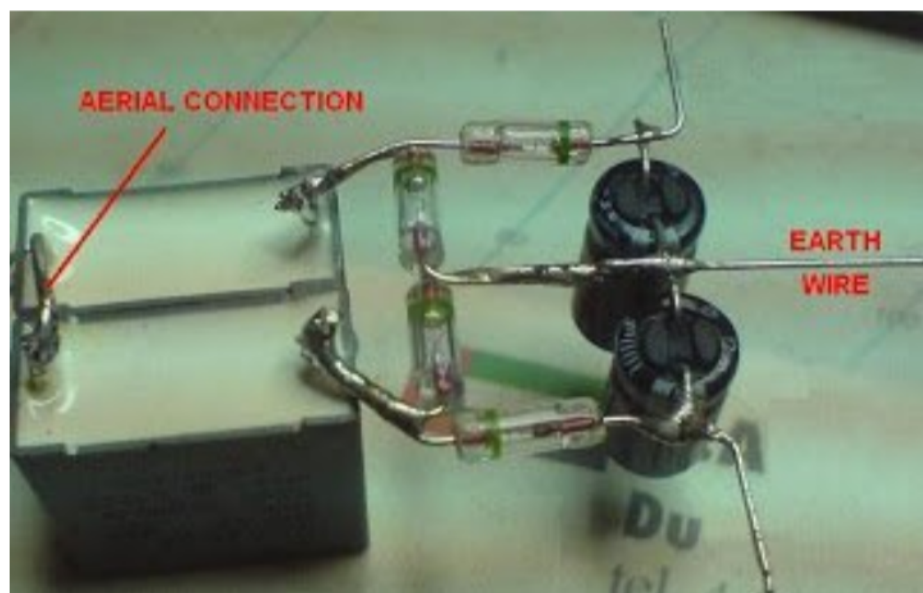


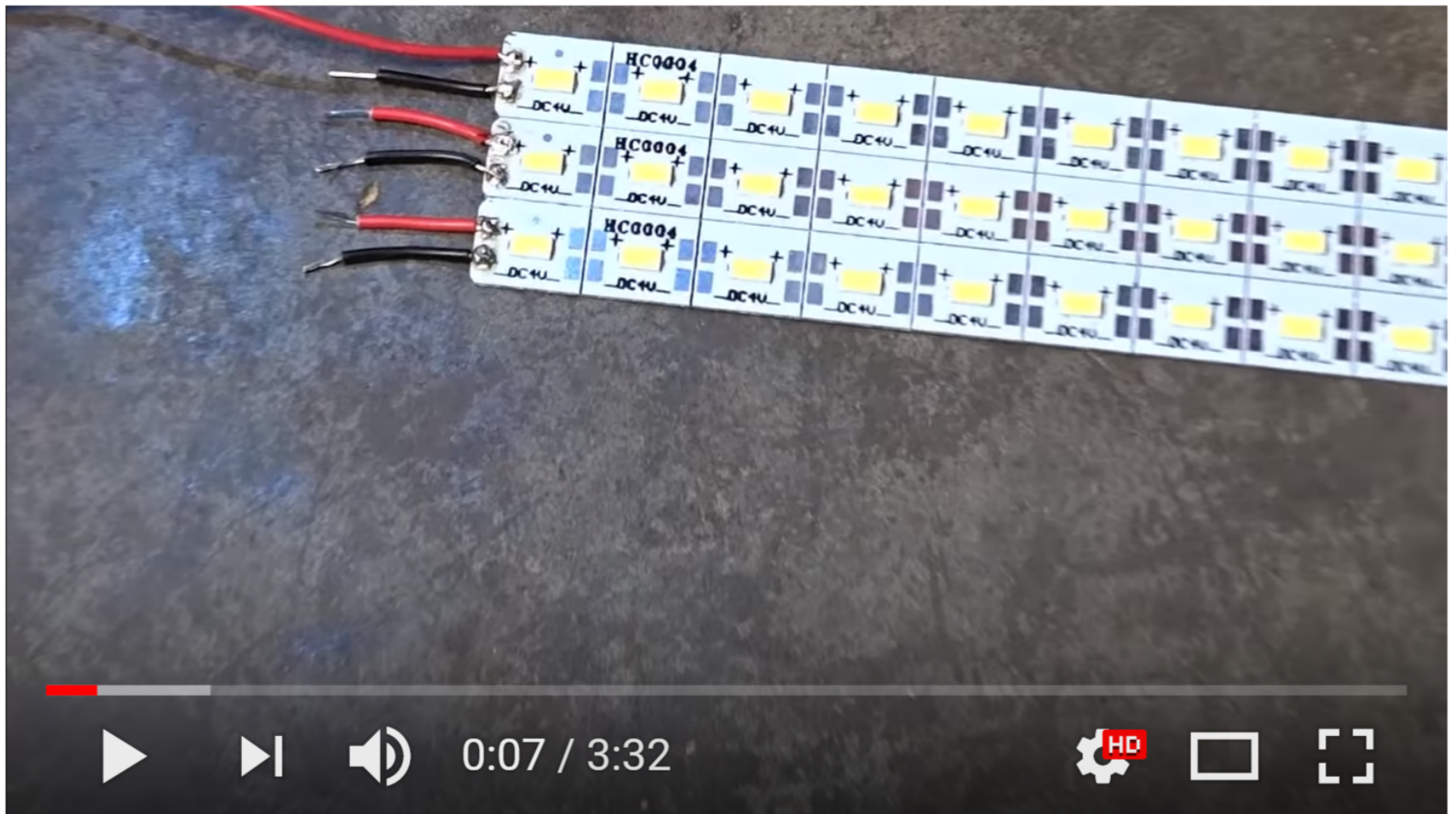
Parts List

All Diodes are 1N4148

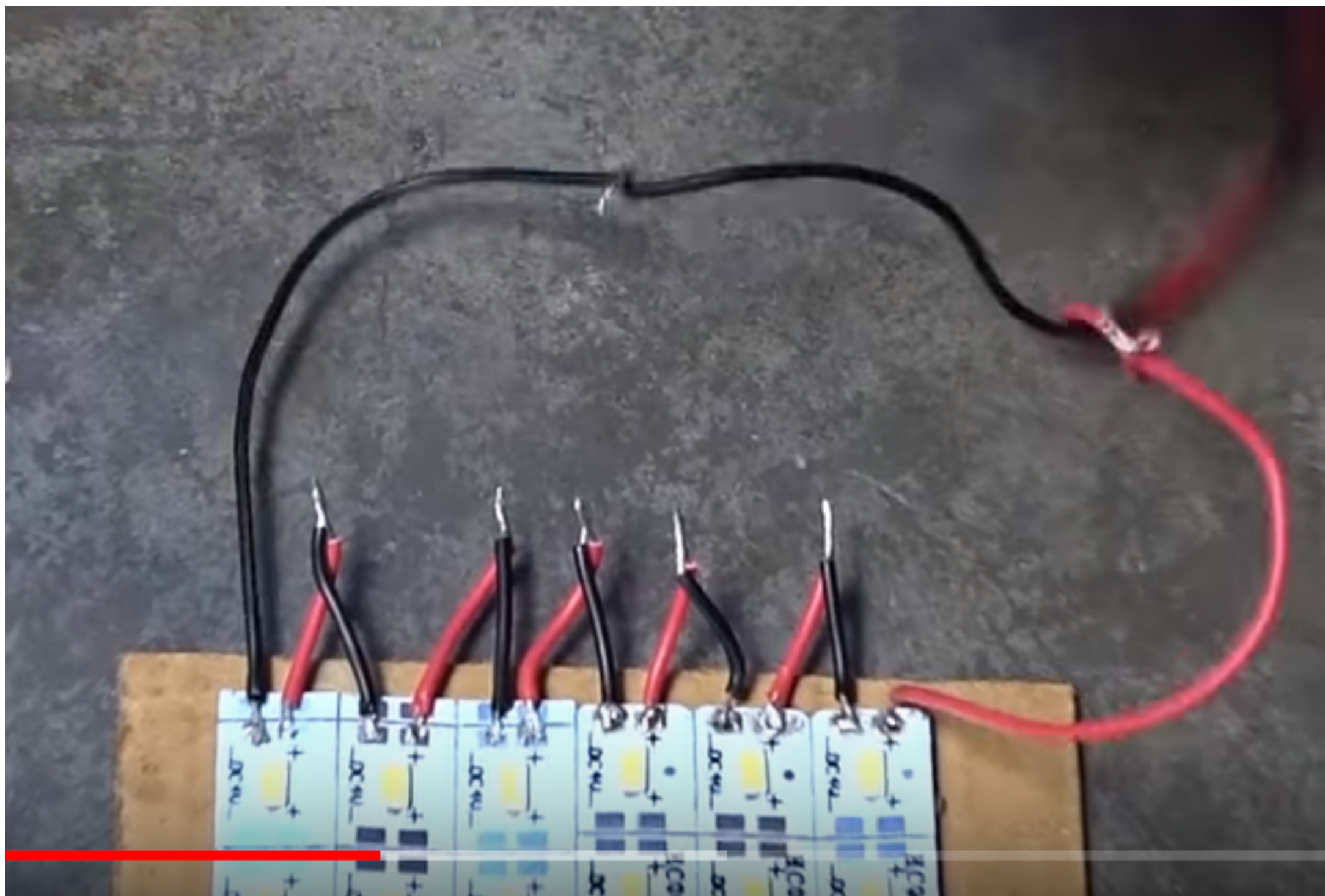
C1---C8 = 0.22uF/100V mylar

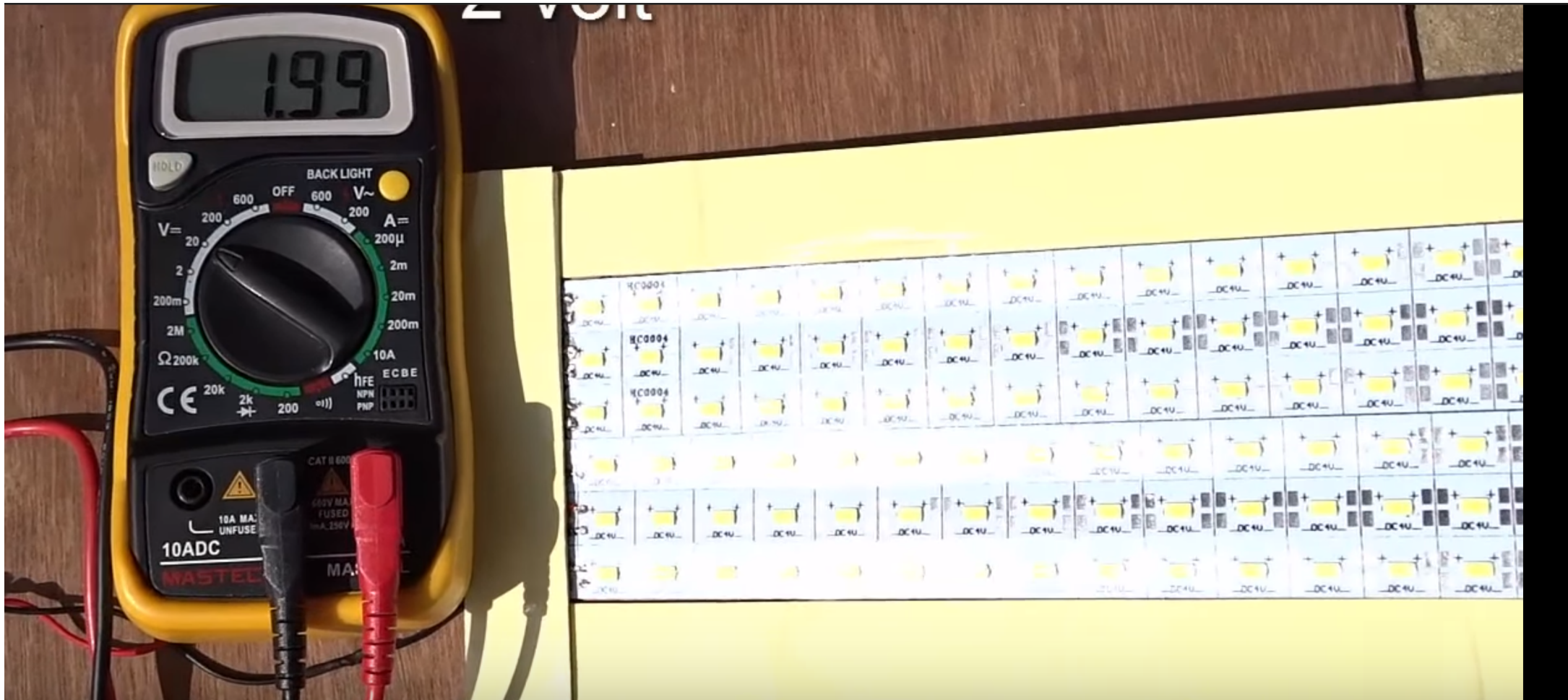
C9----C16 = 33uF/25V electrolytic





New idea - You can make Solar Cell from LED (Free Energy)





CENTECH

7 FUNCTION
DIGITAL
MULTIMETER



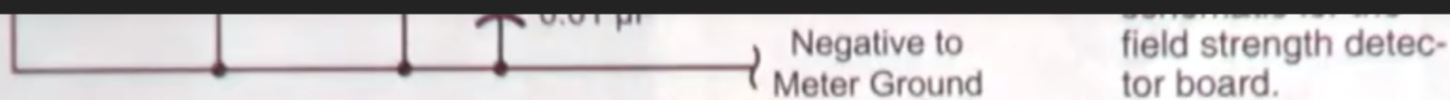
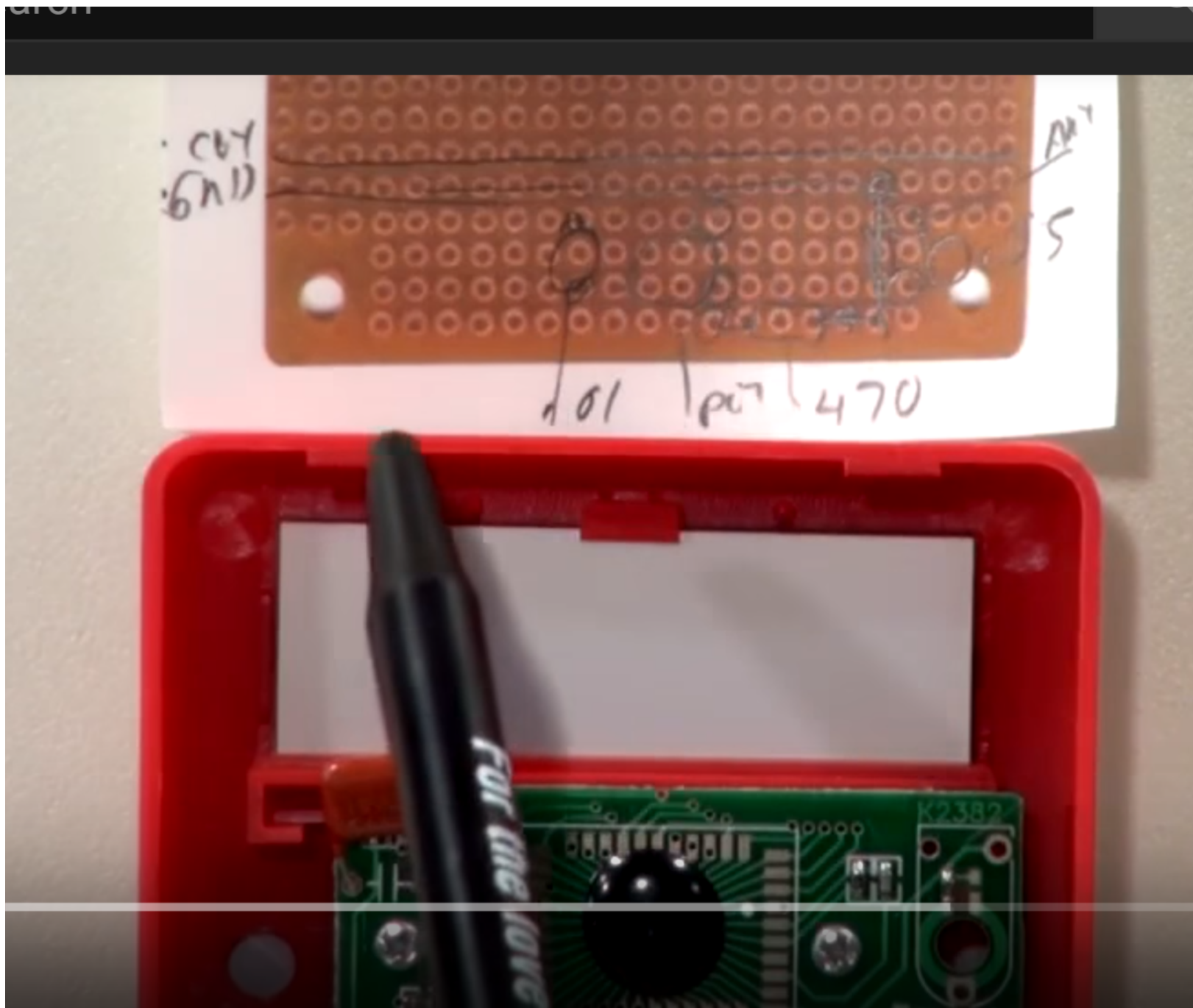


Figure 4 — The detector board mounted inside the multimeter case. The bottom of the board is insulated with plastic tape. [Richard Russo, KB3VZL, photo]



Figure 5 — The original graded companion. [KB3VZL, photo]



Up next

QS1502-HK03

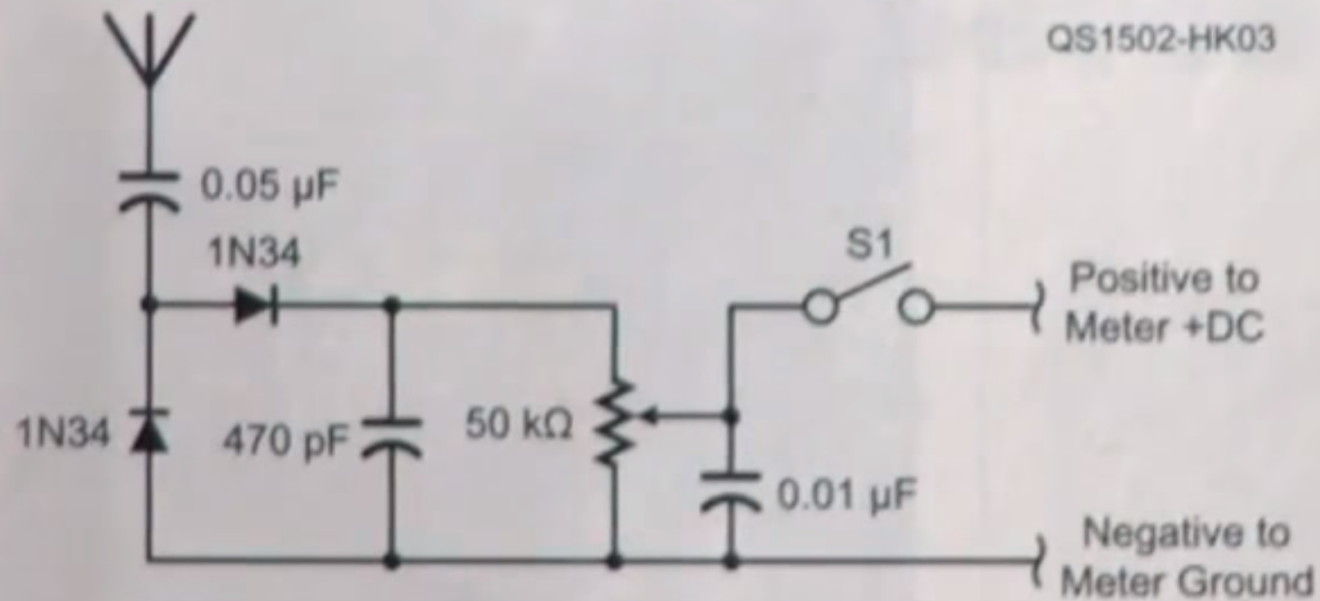
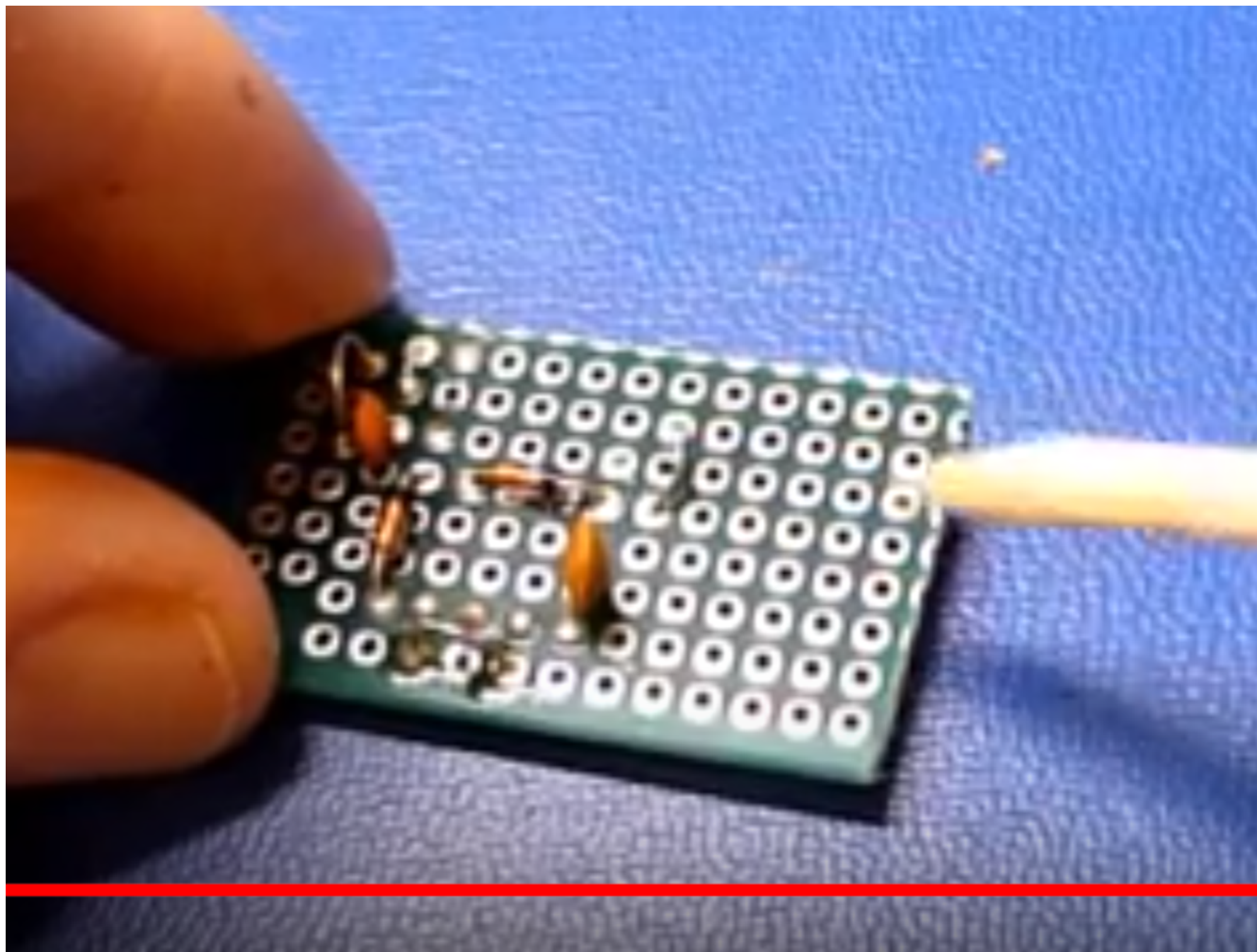
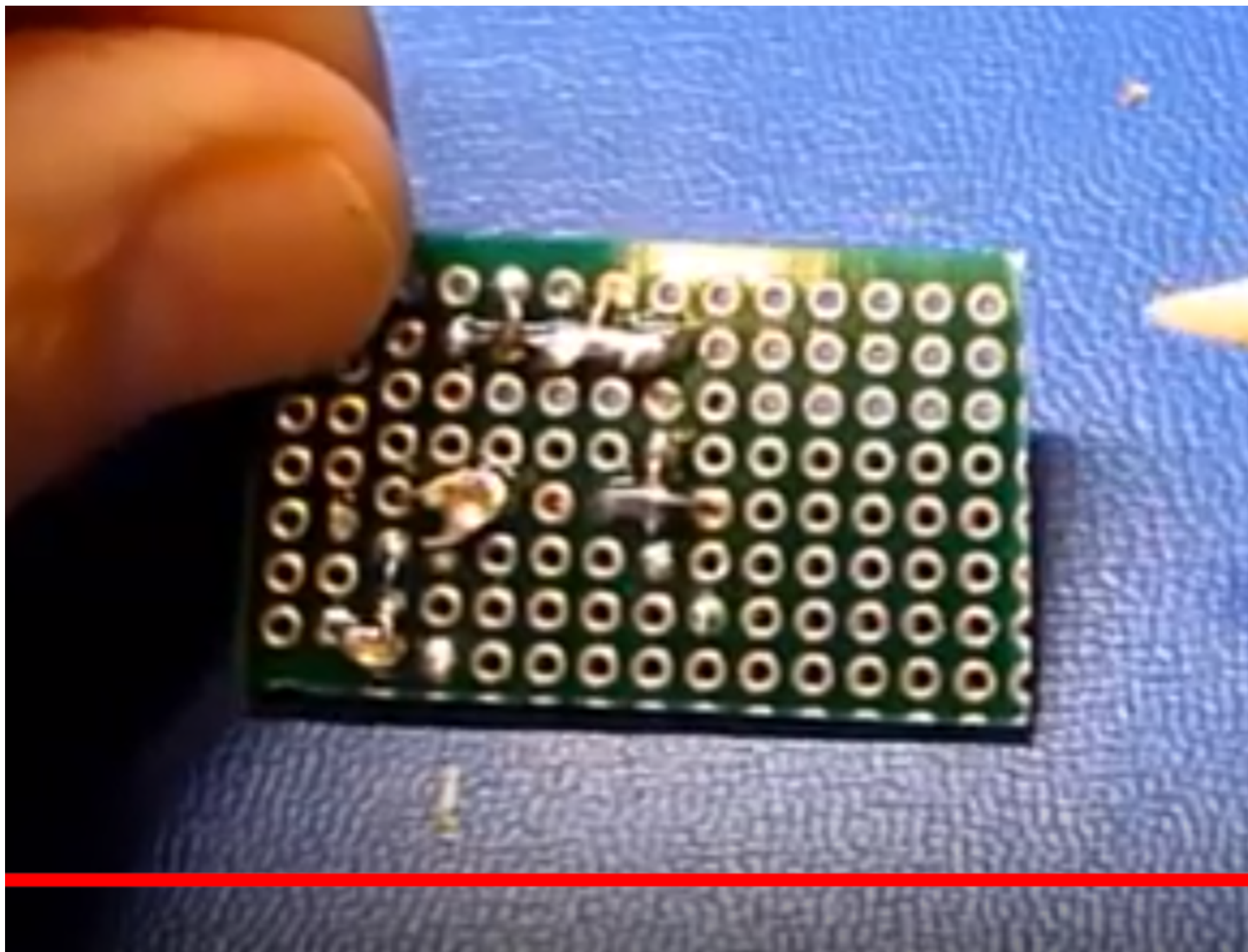
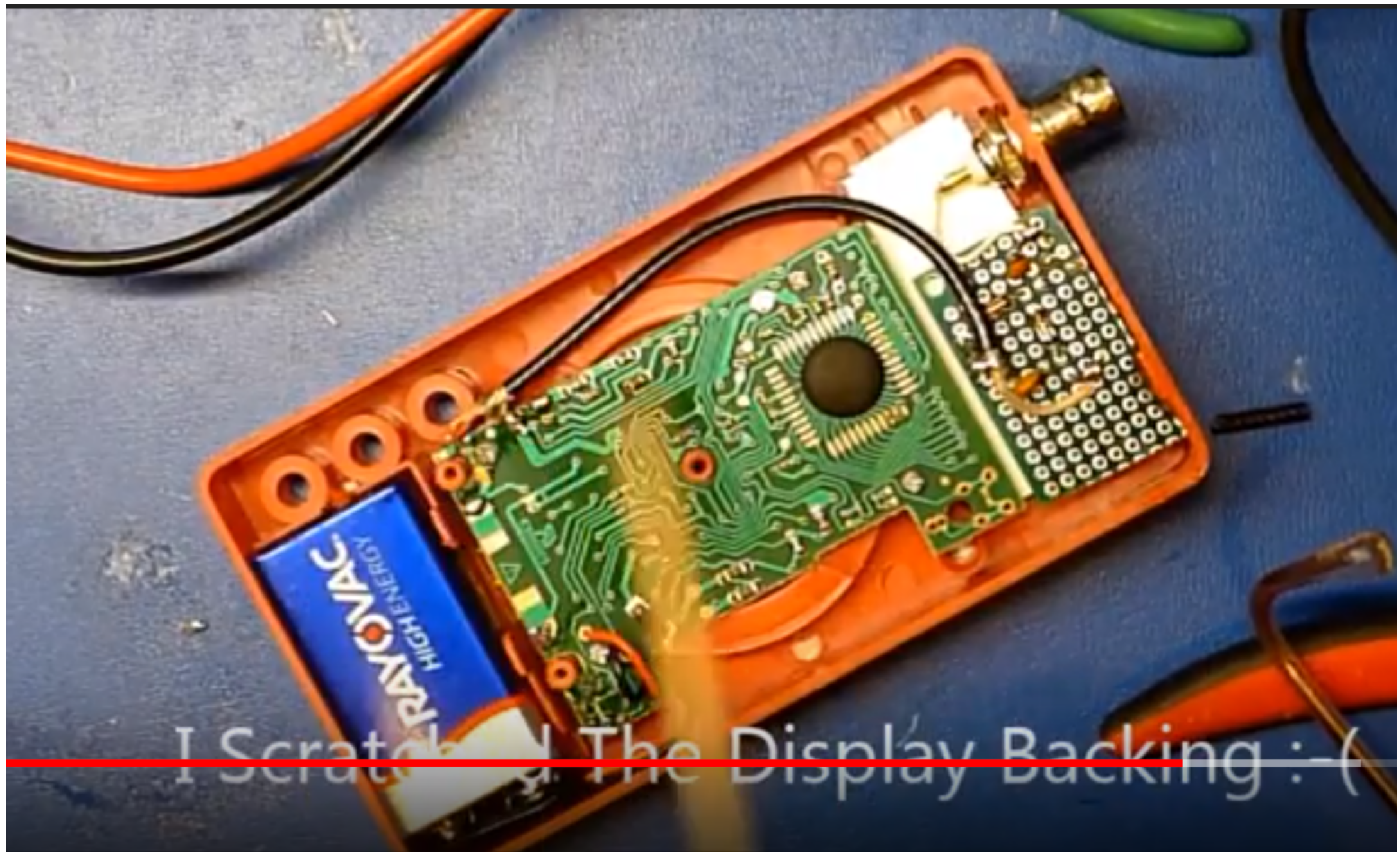


Figure 3 — The schematic for the field strength detector board.







I Scratched The Display Backing :- (

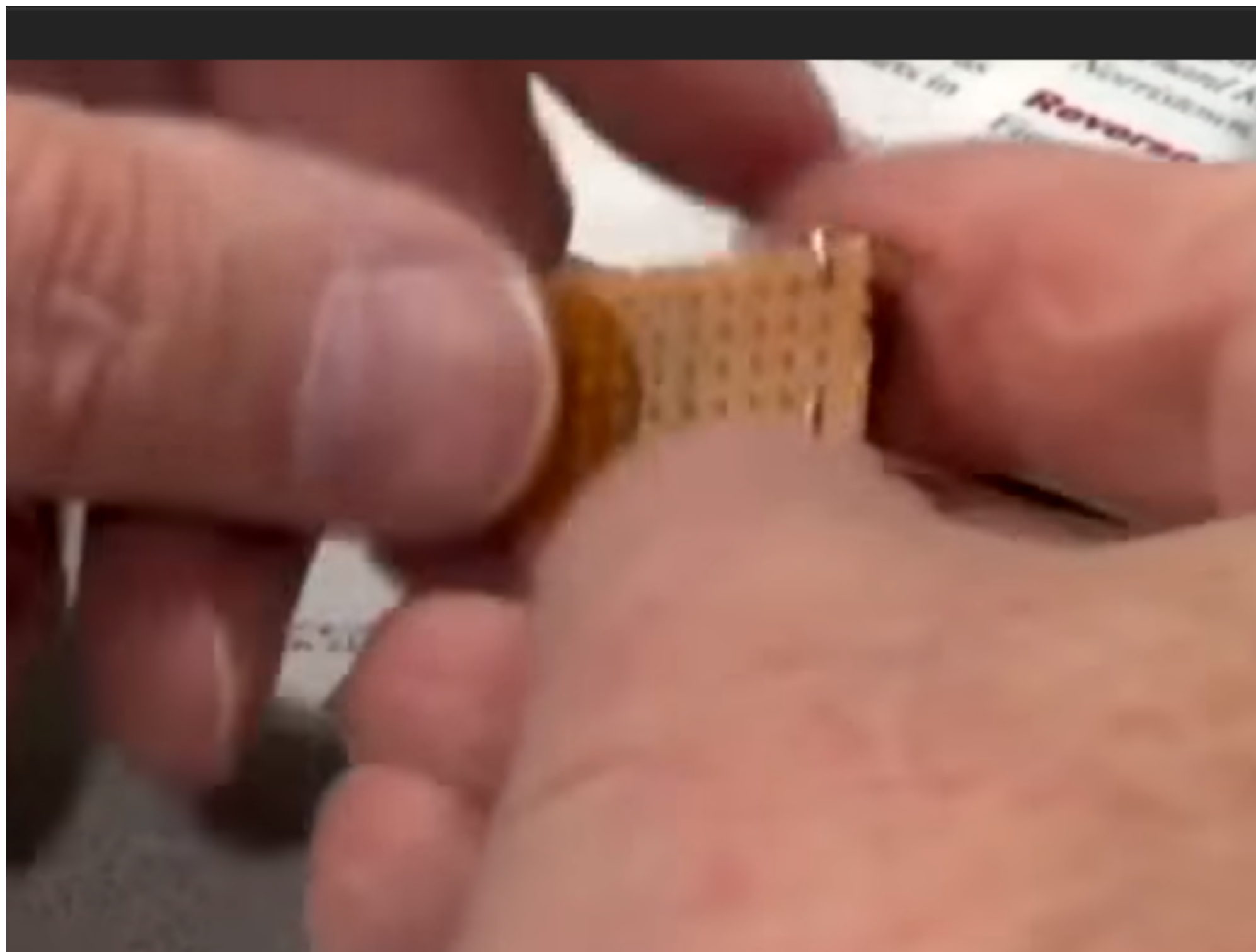


Let's Build A Field Strenath Meter

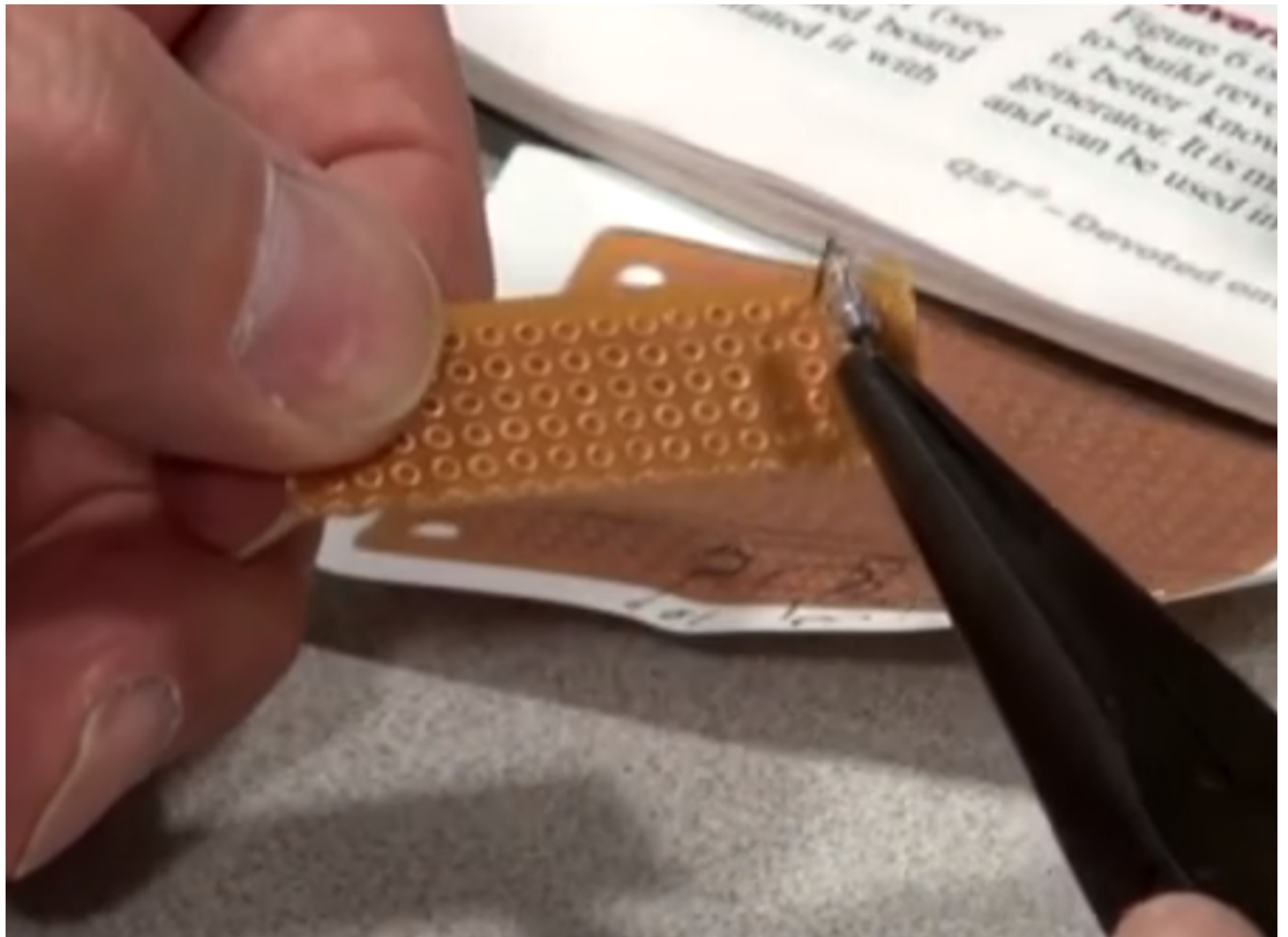
Up next



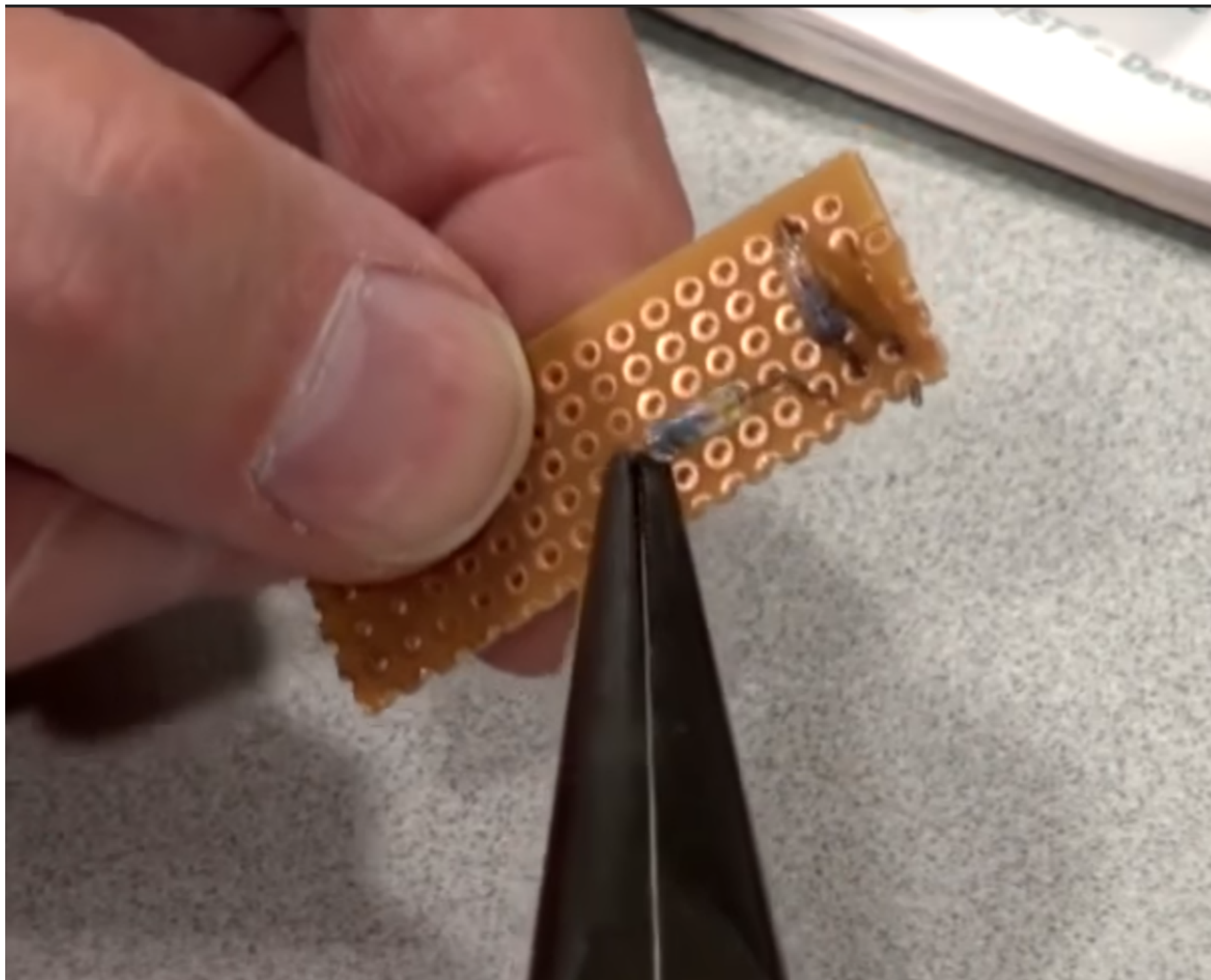


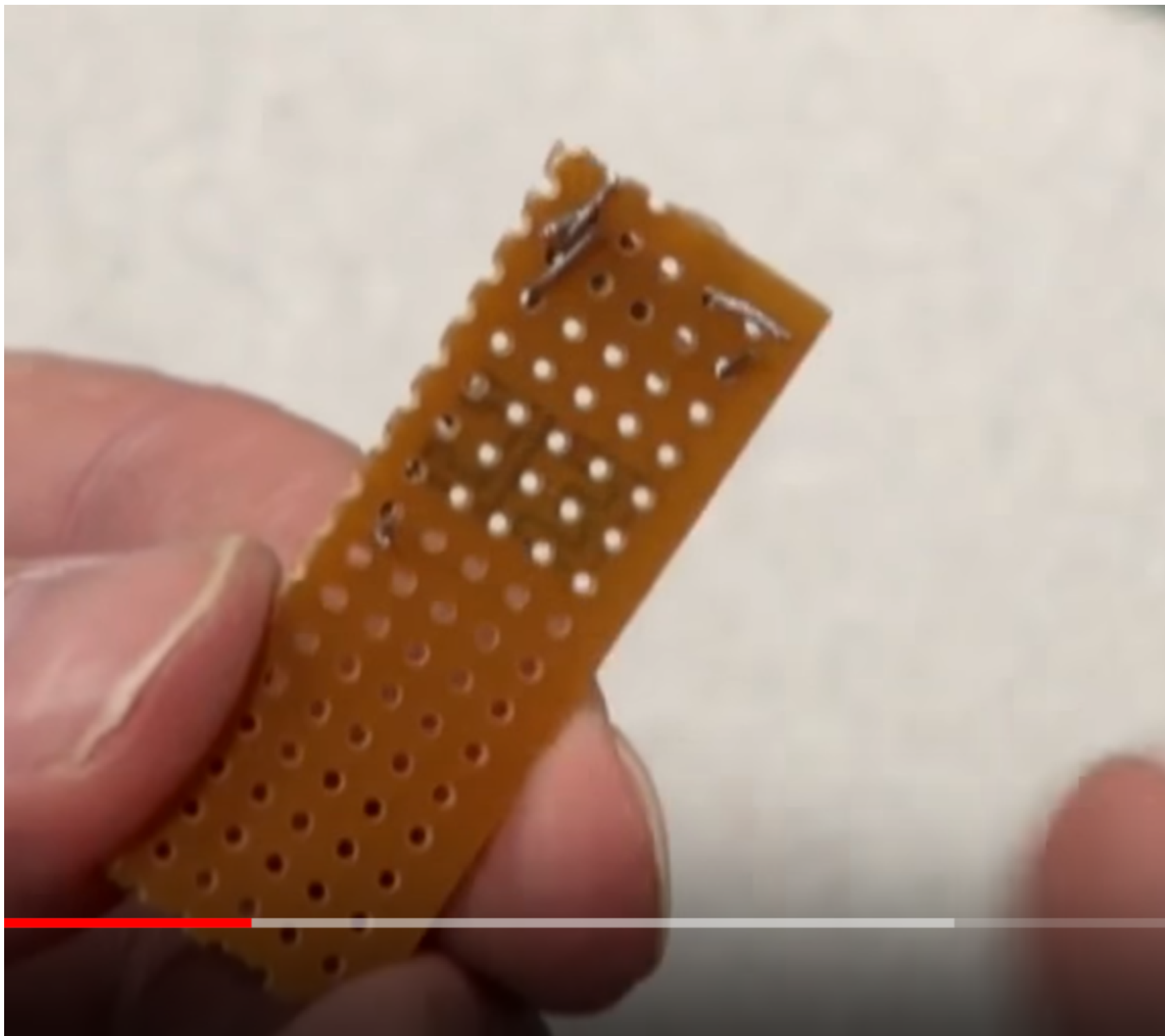


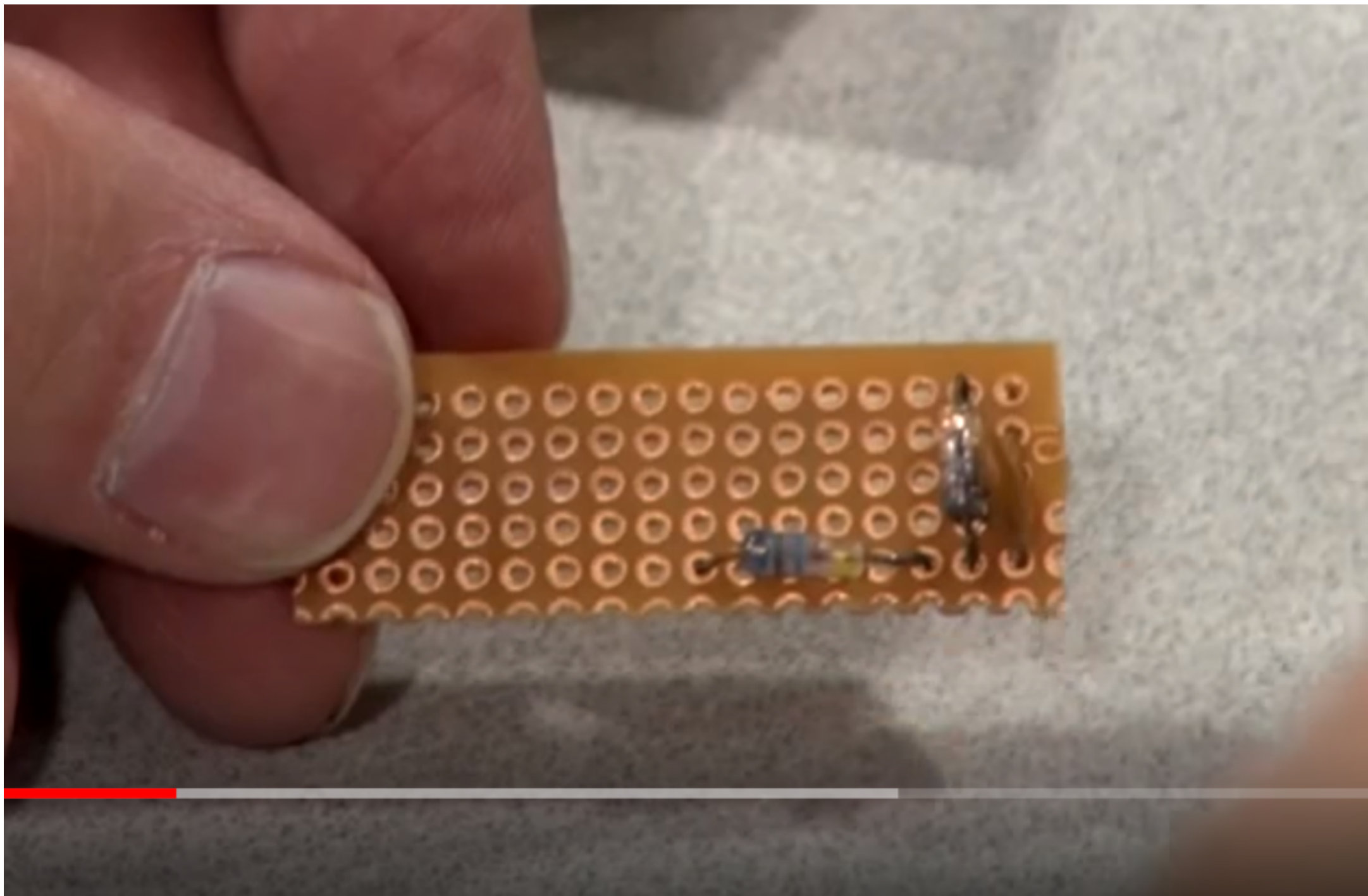


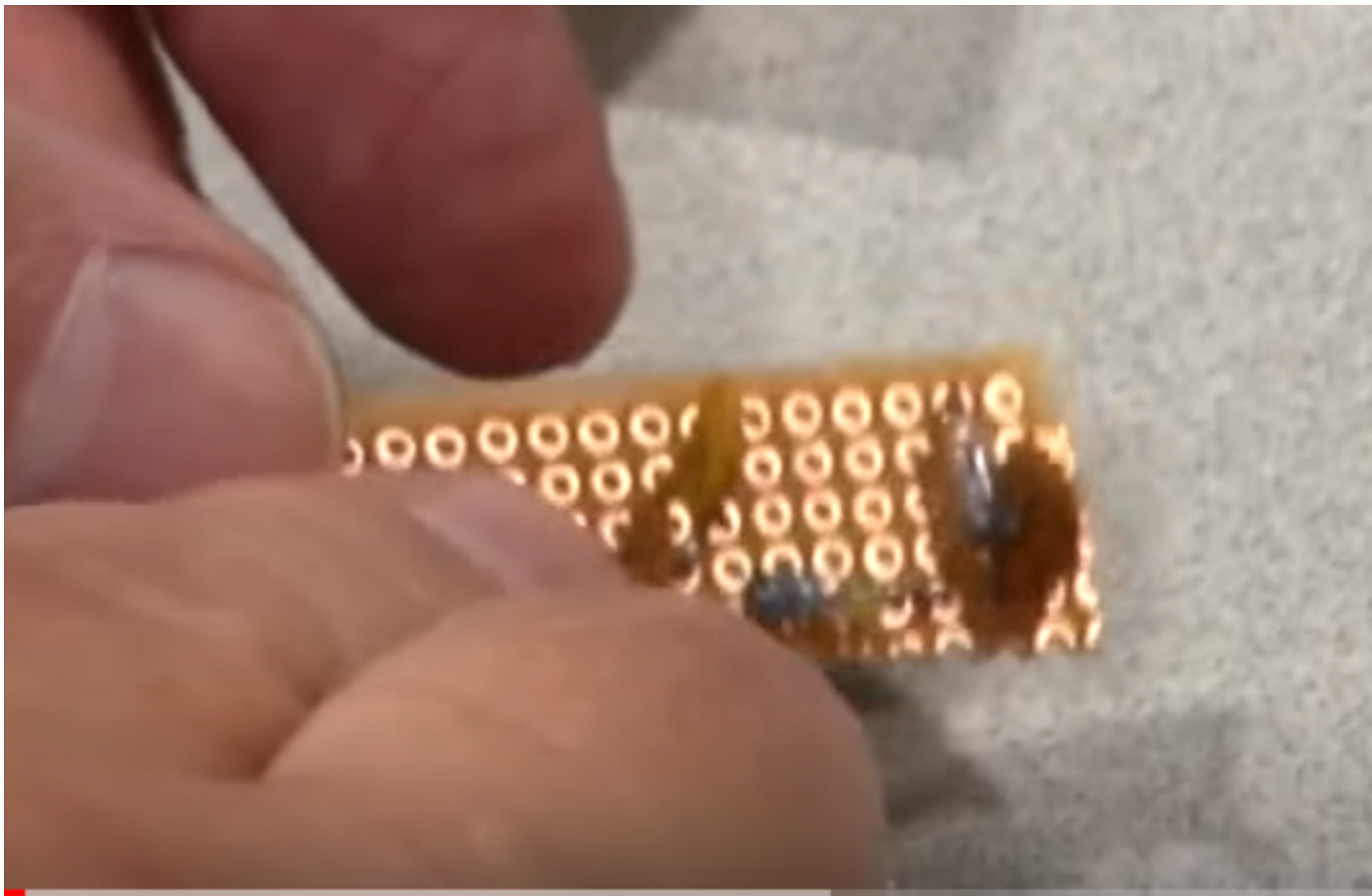






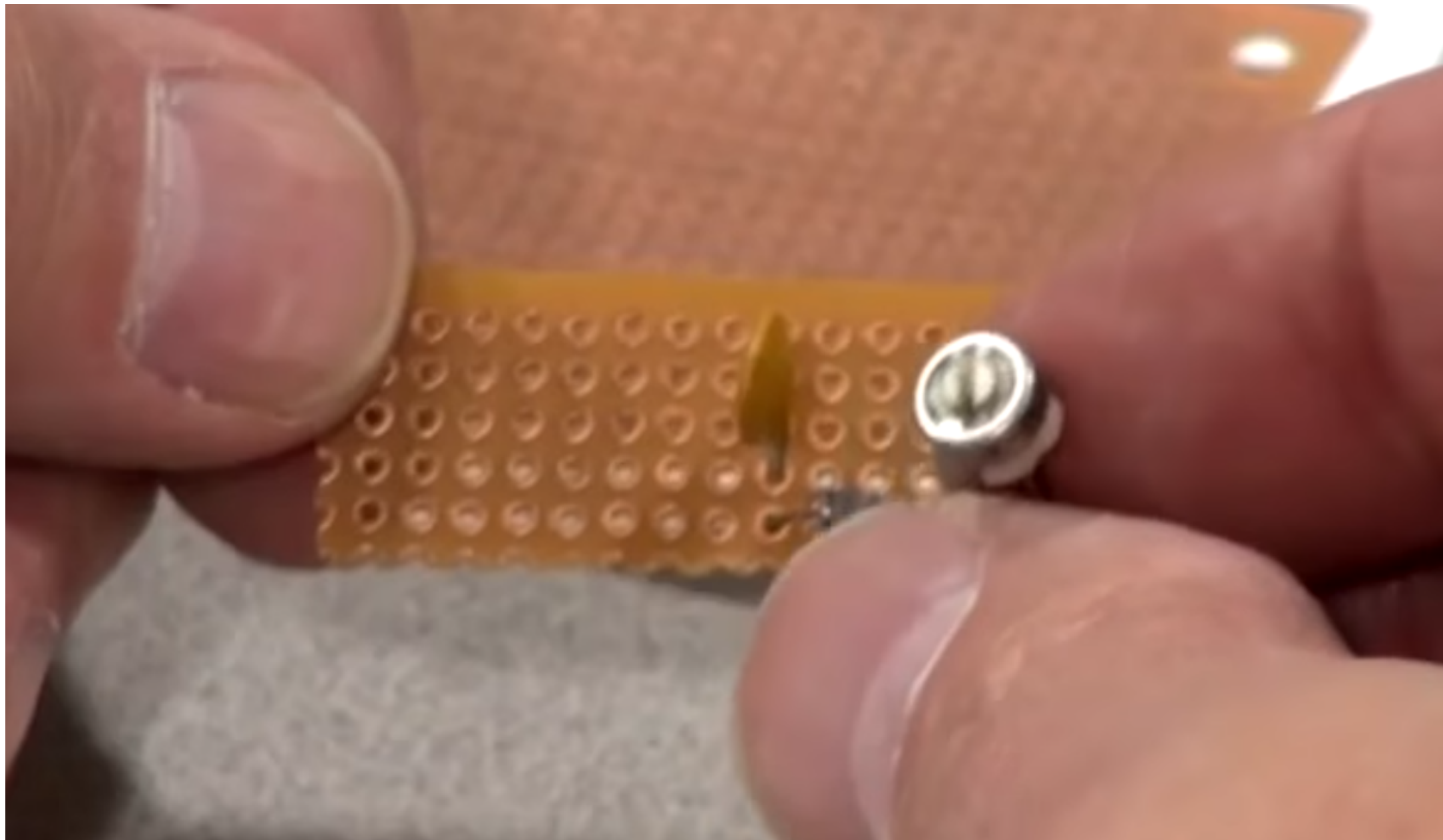


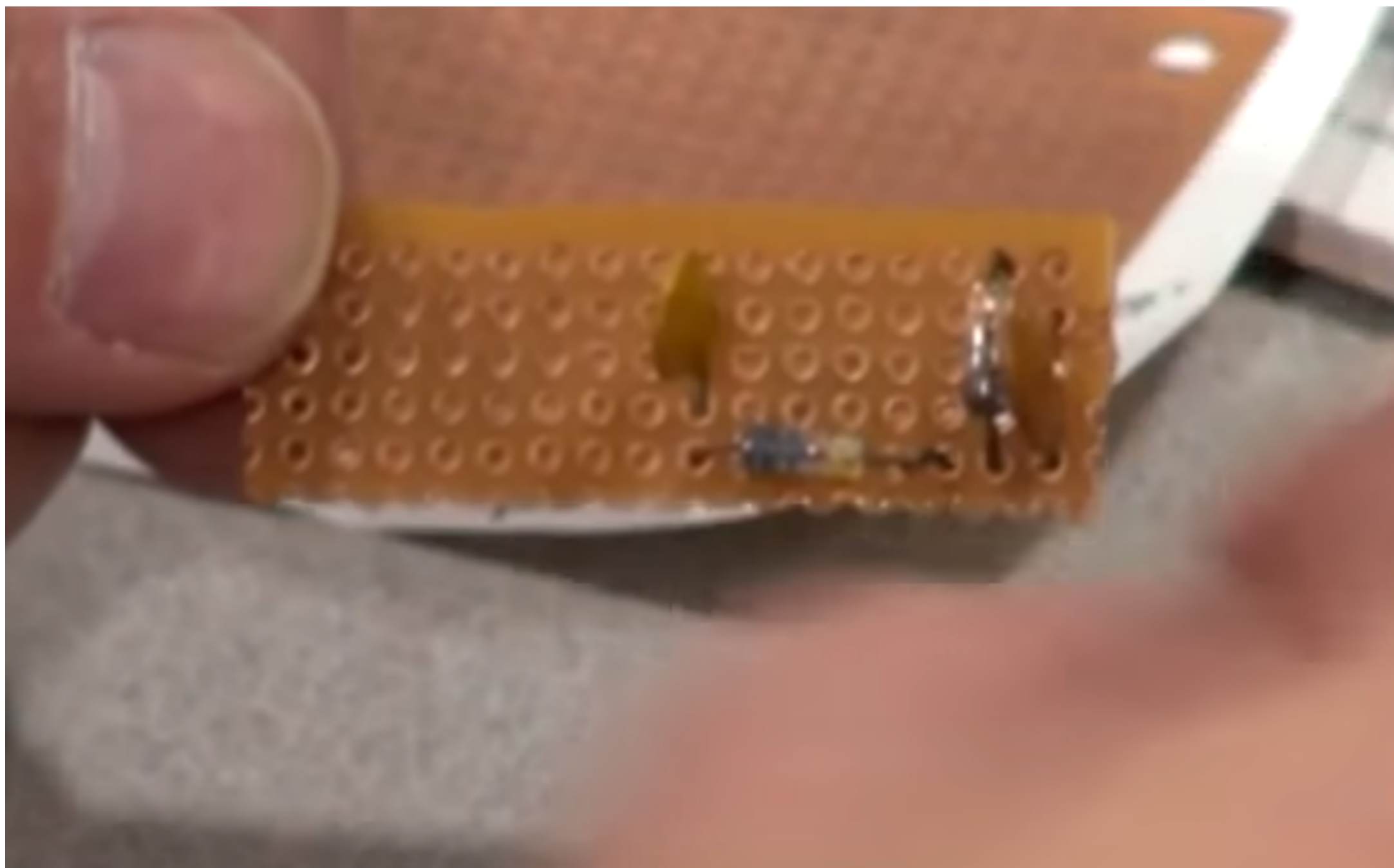


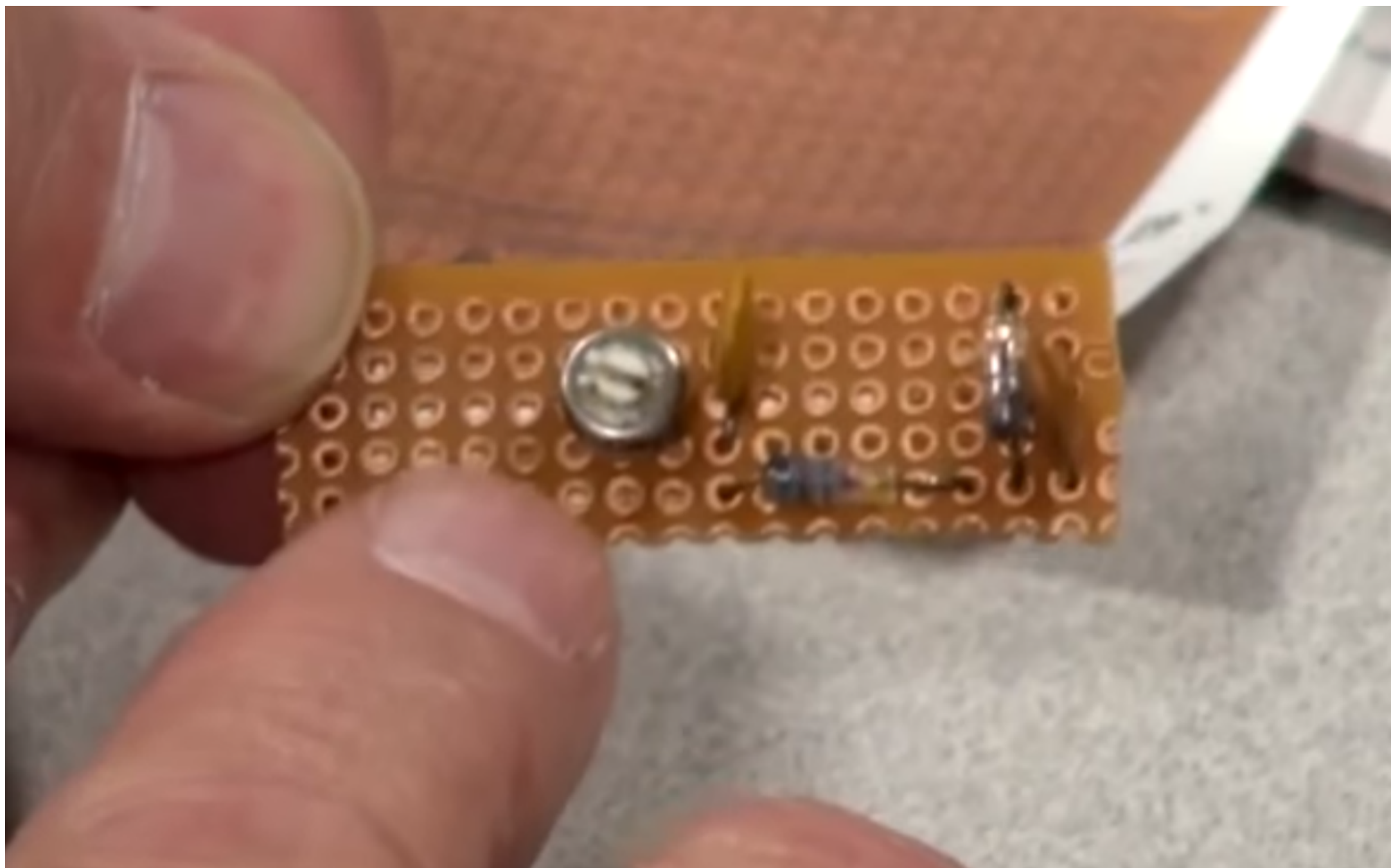


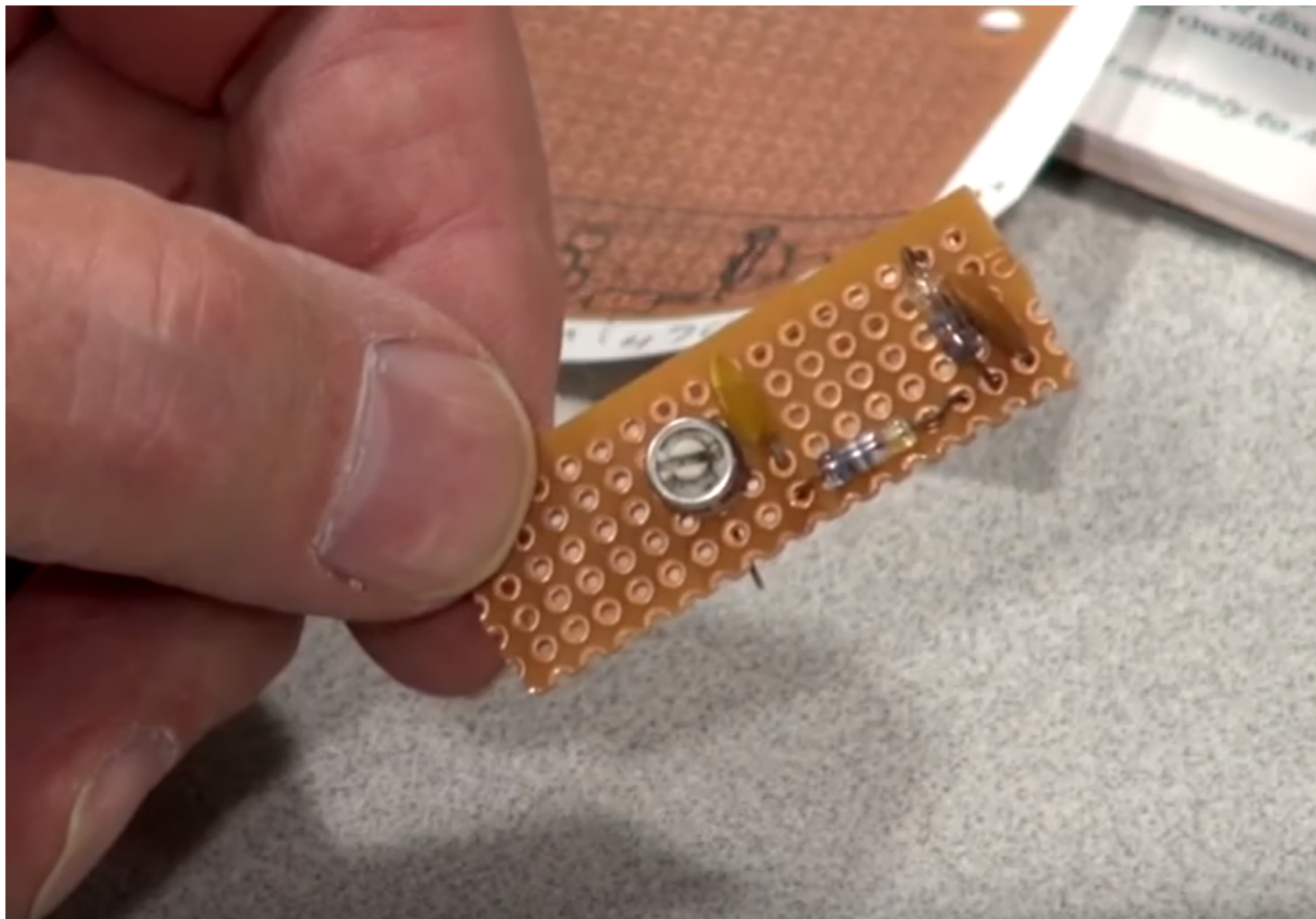


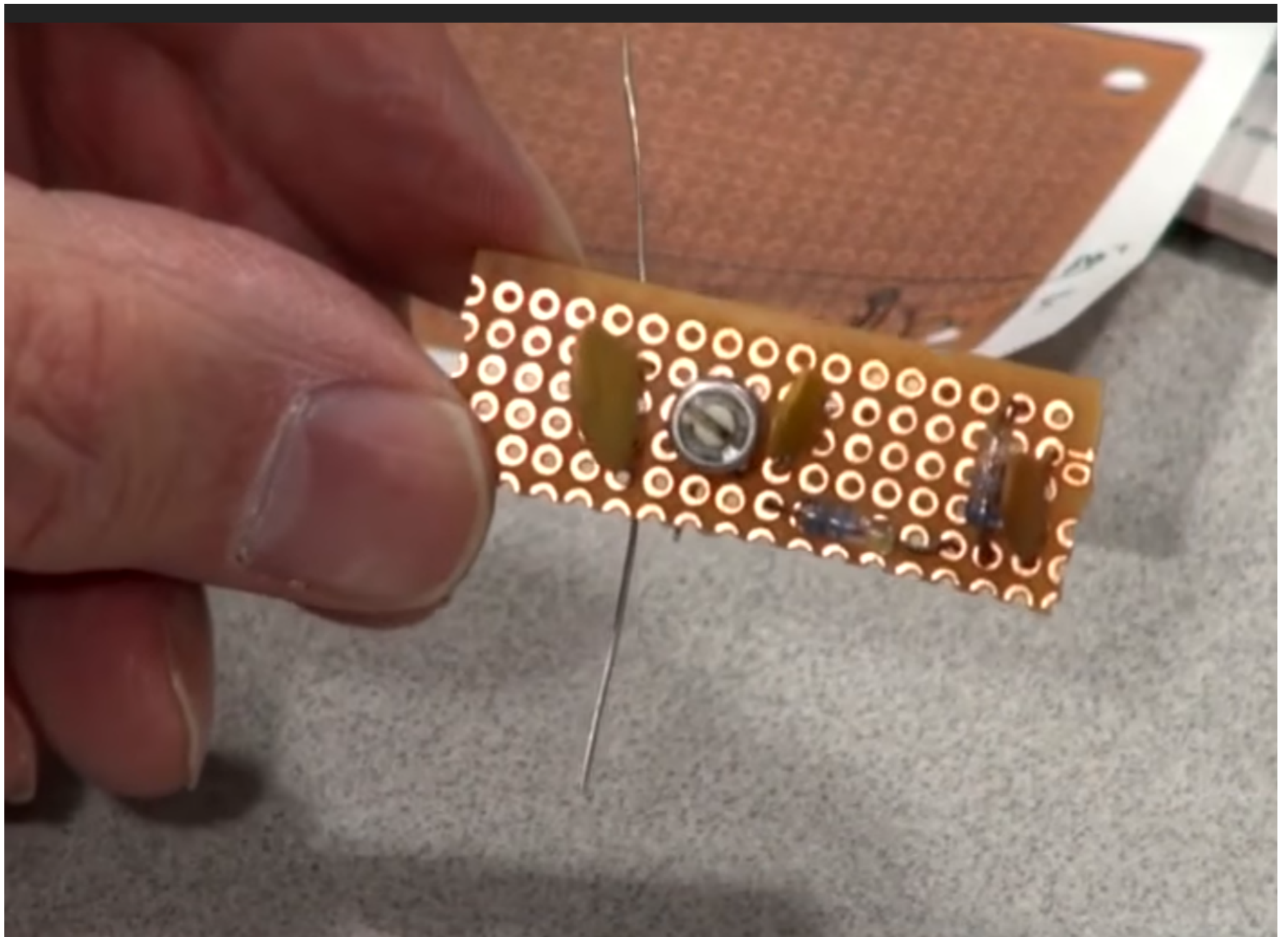


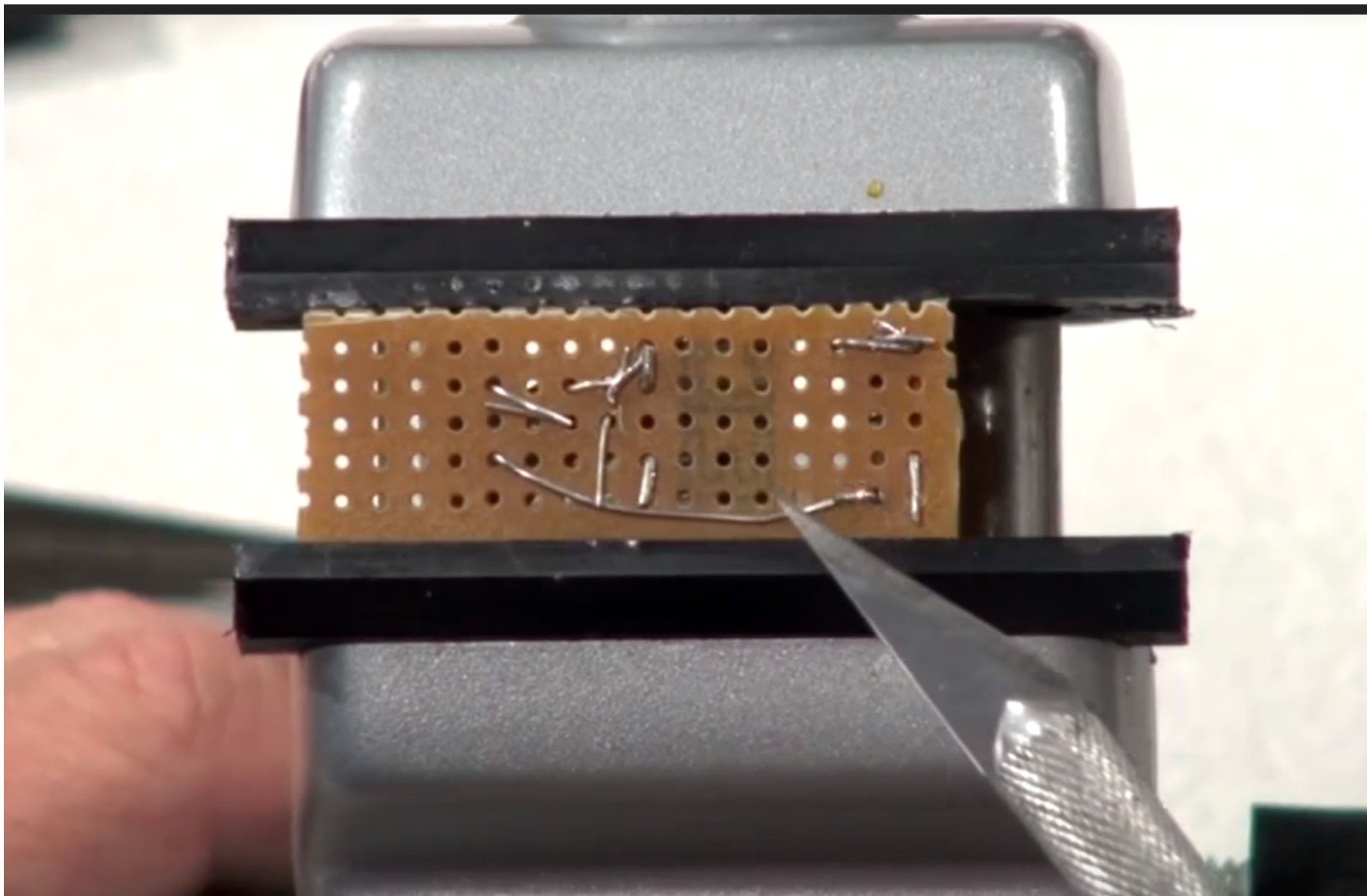


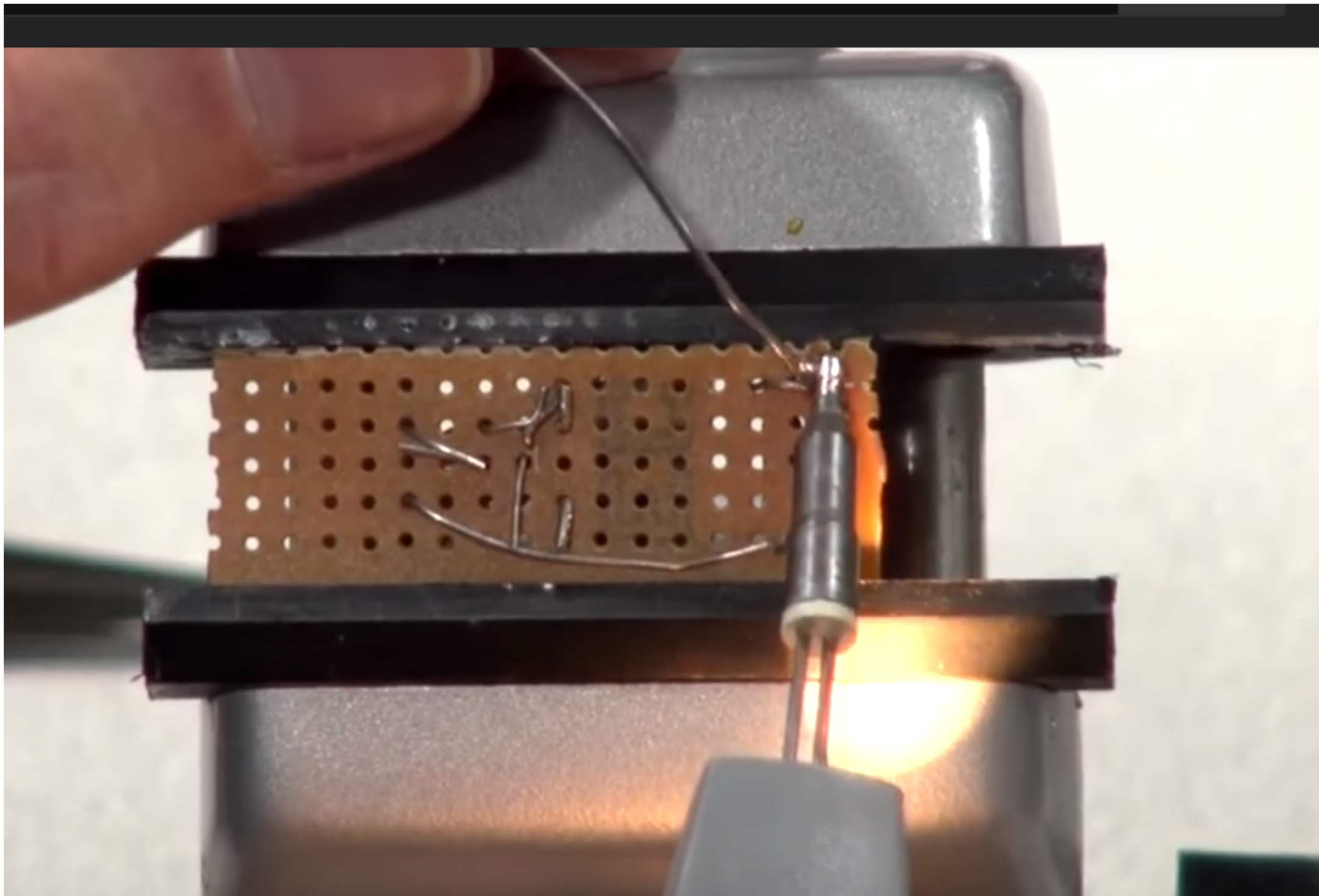


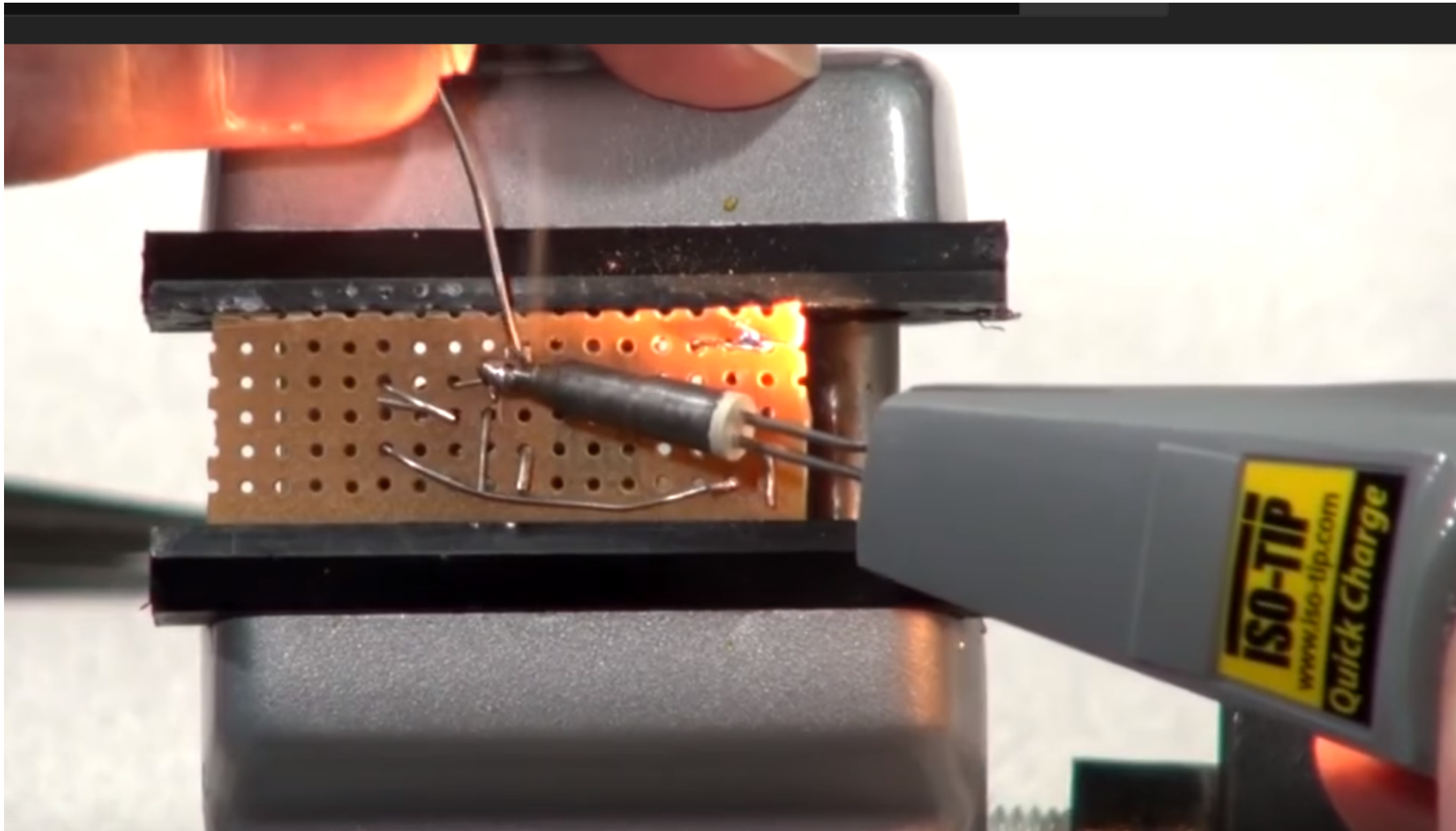


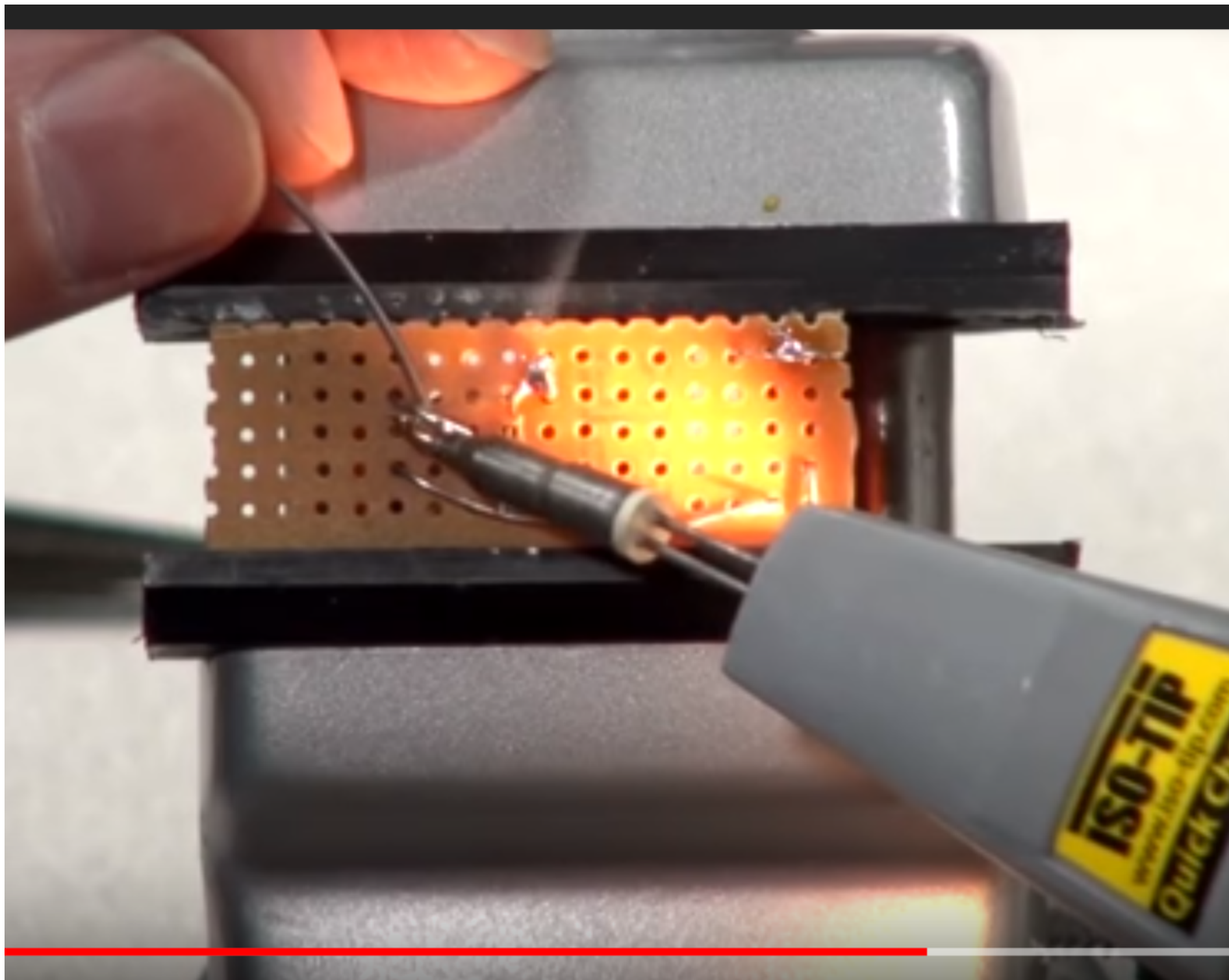


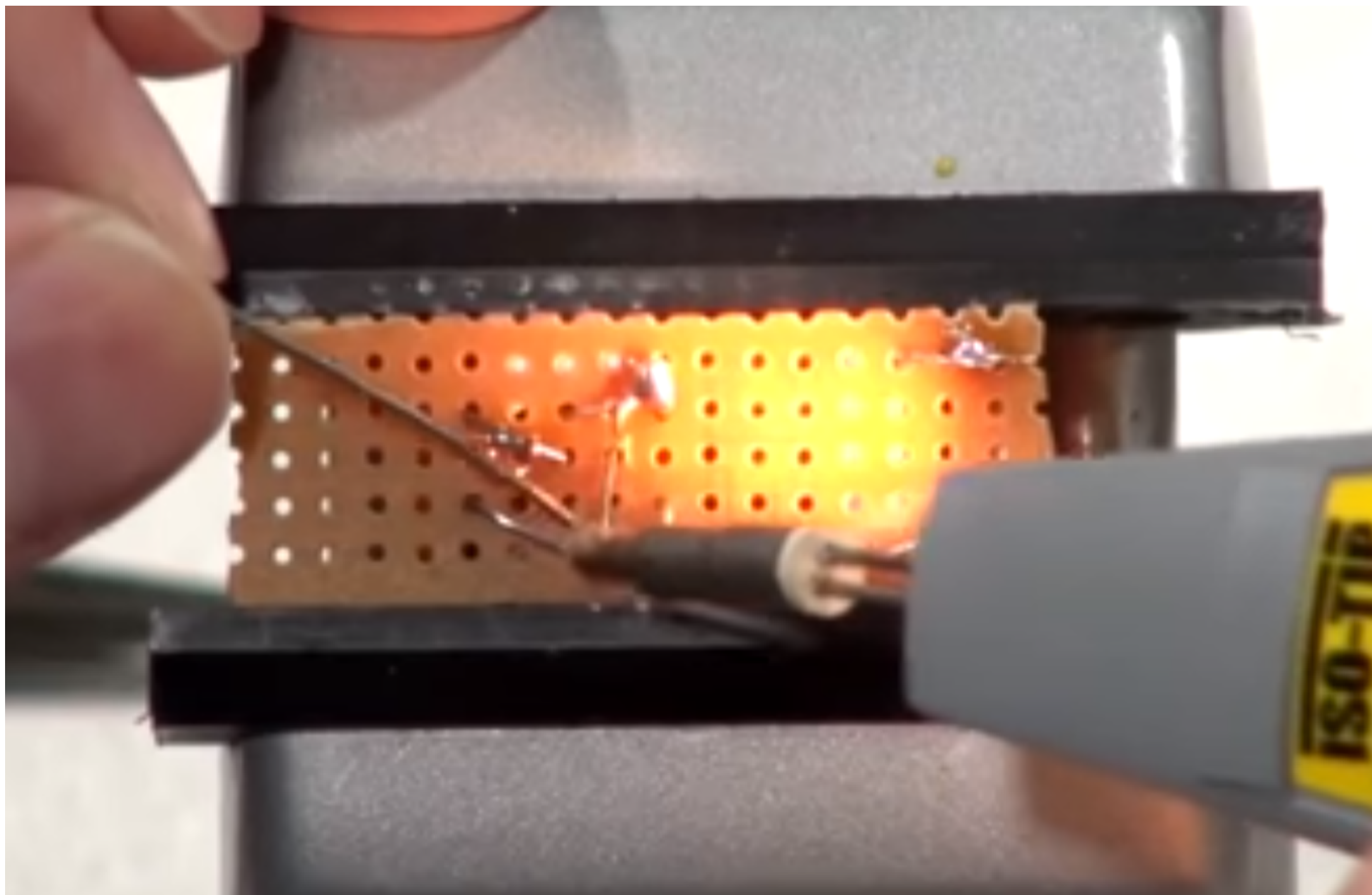


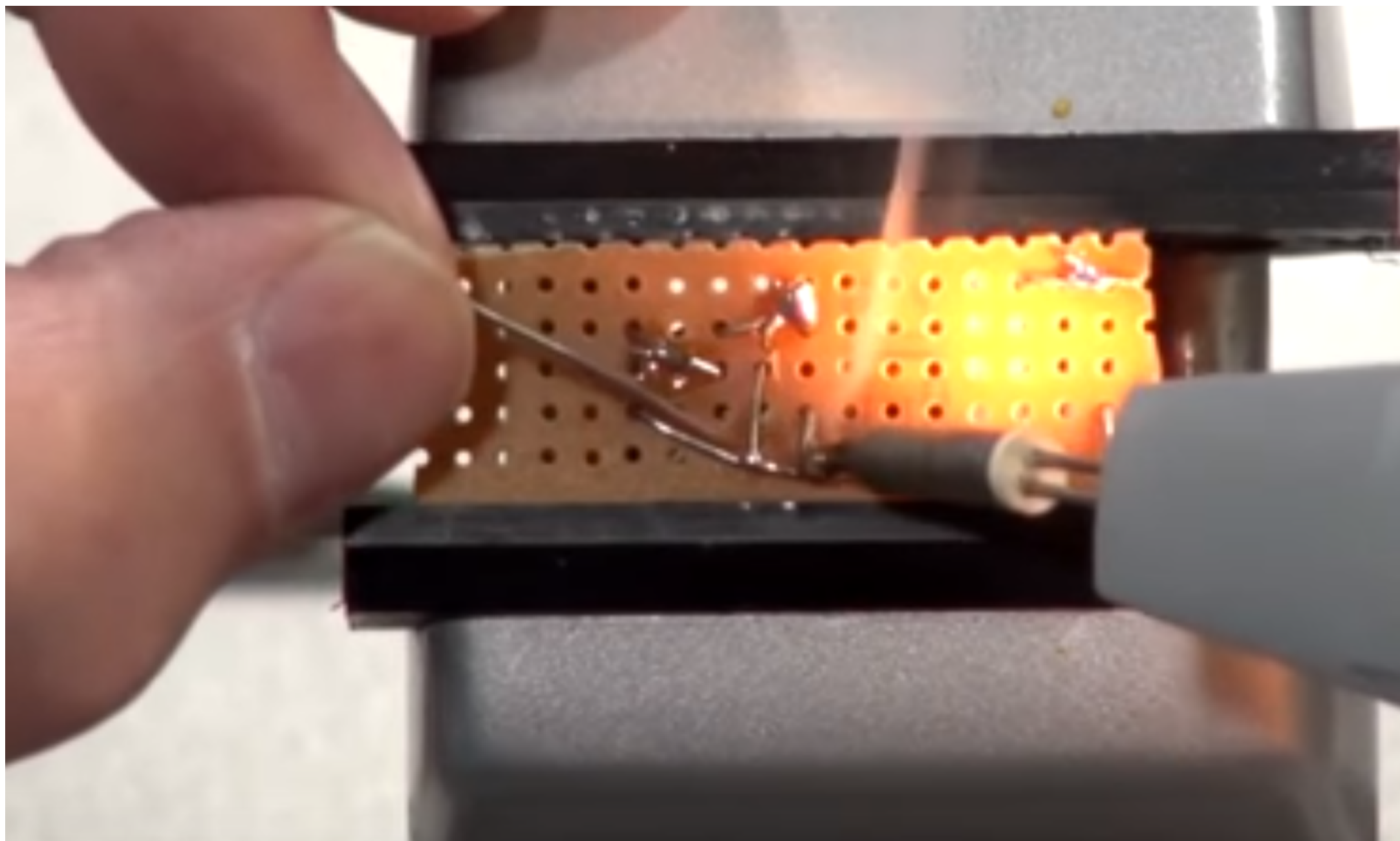


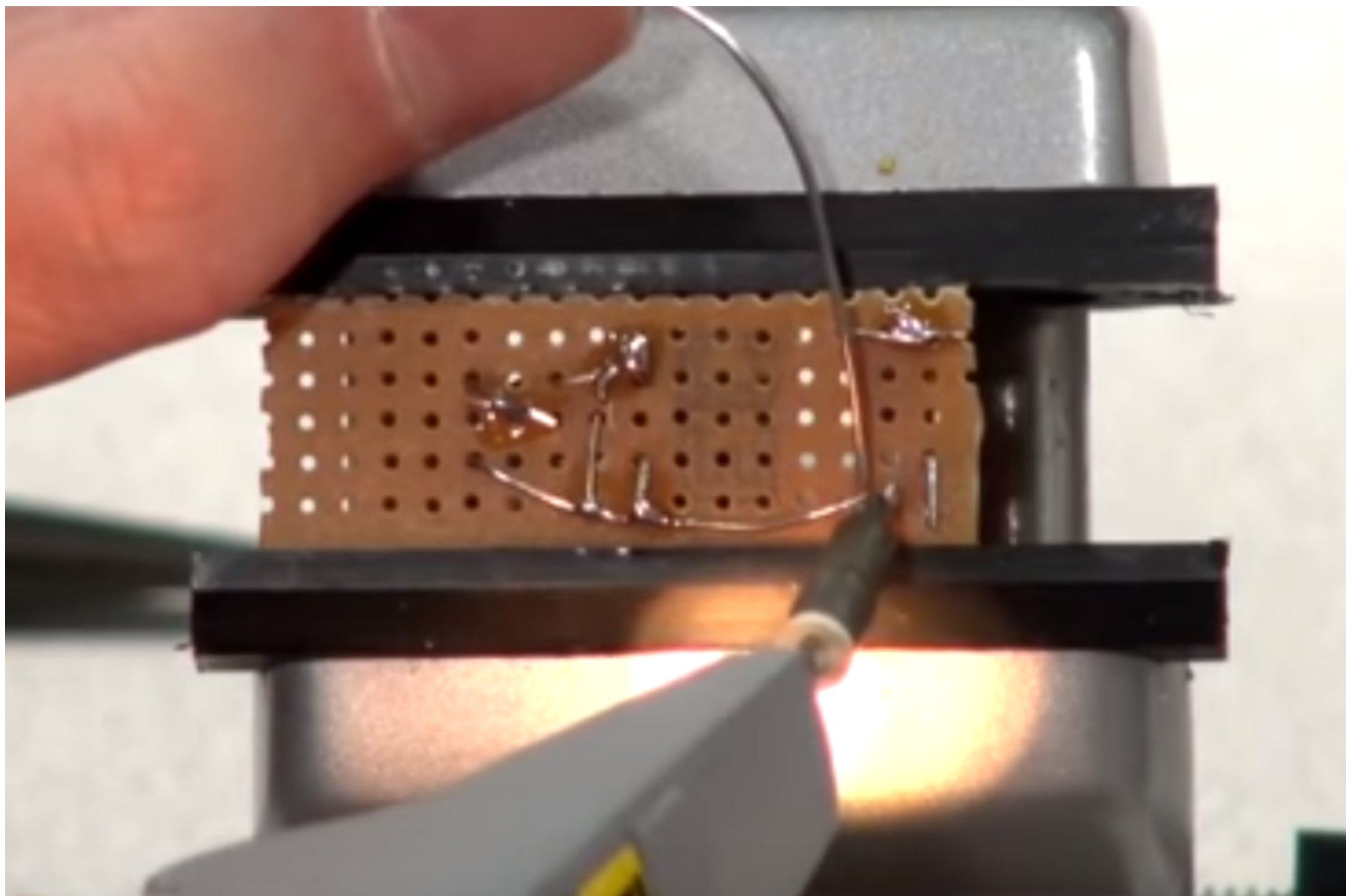


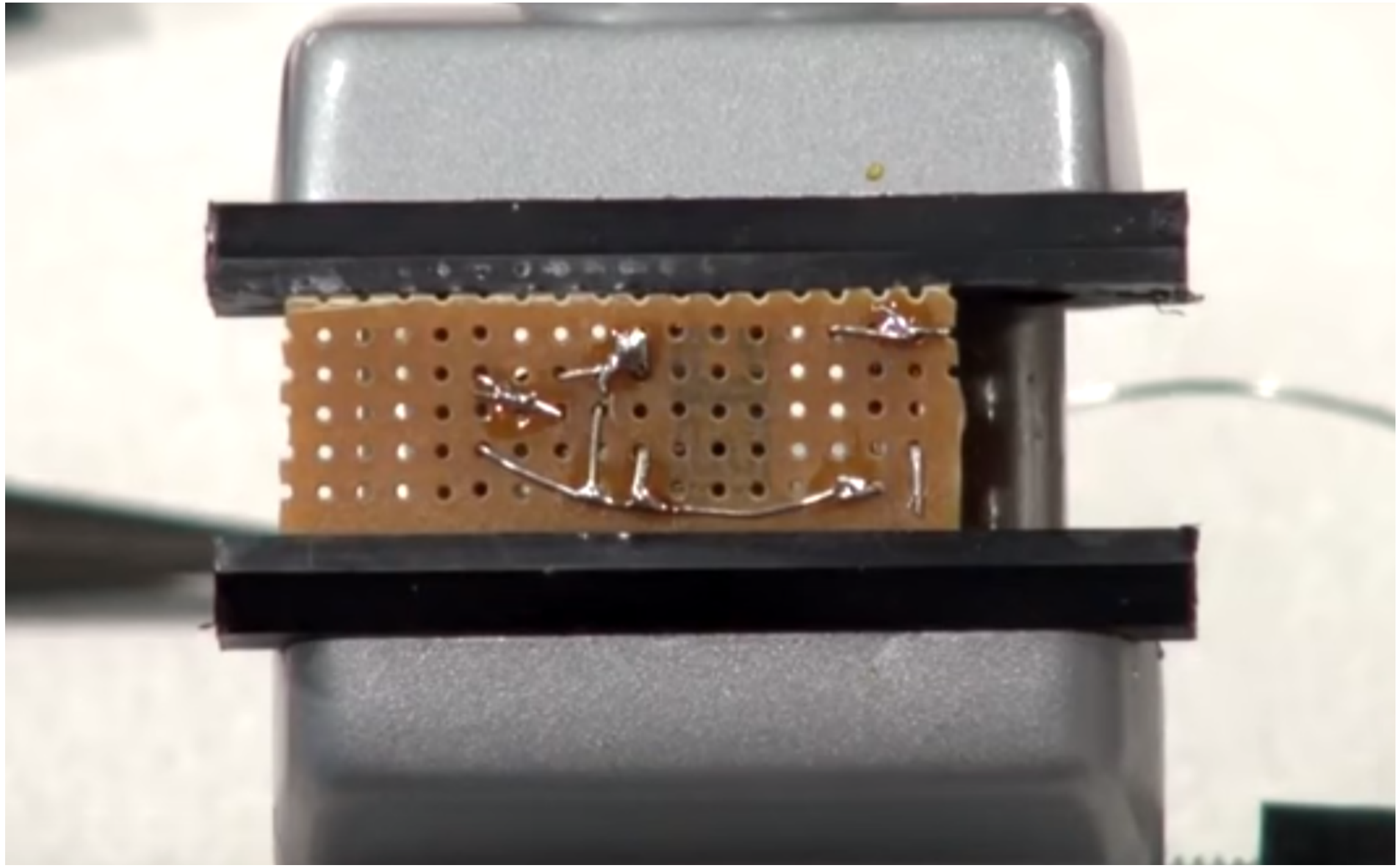


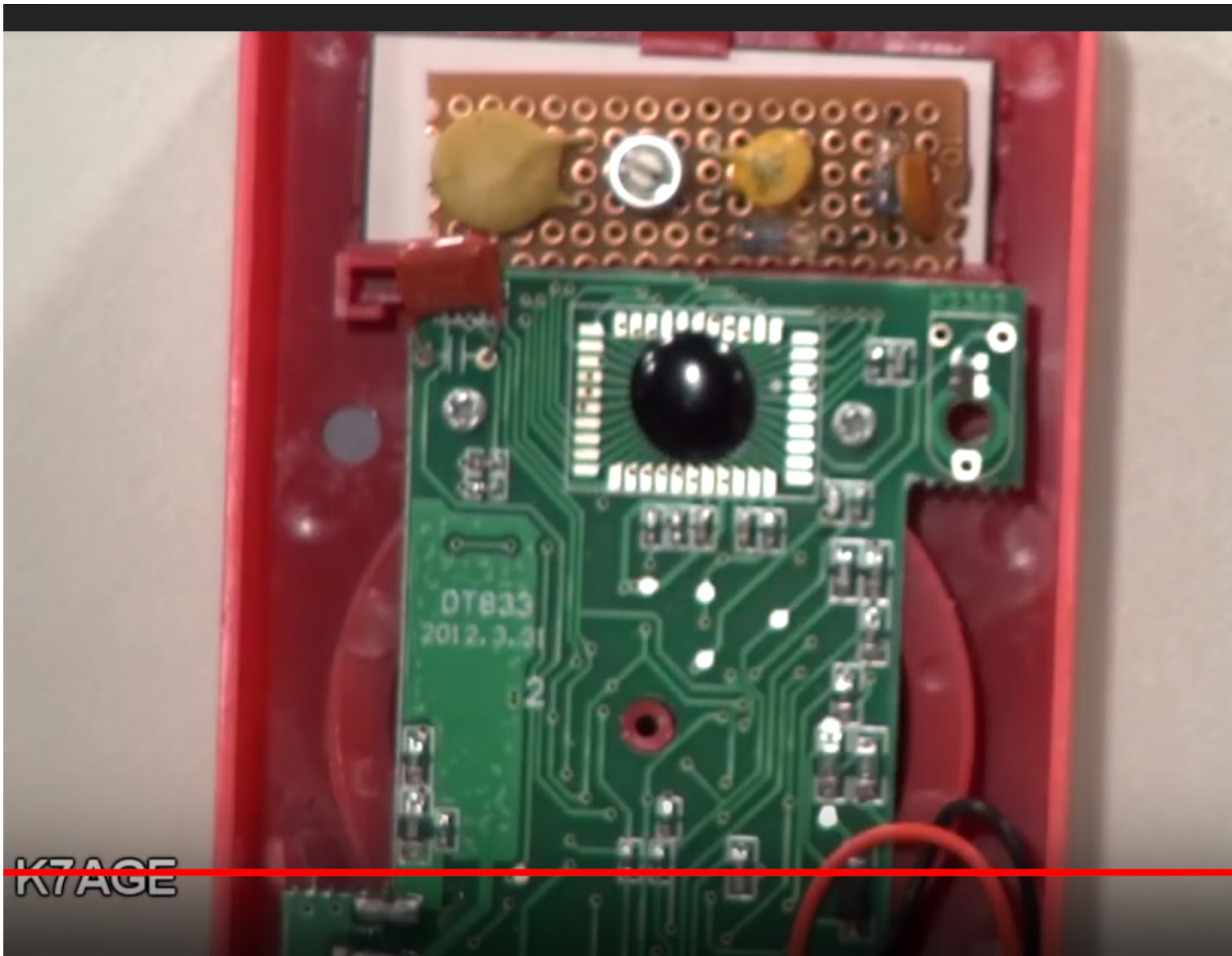




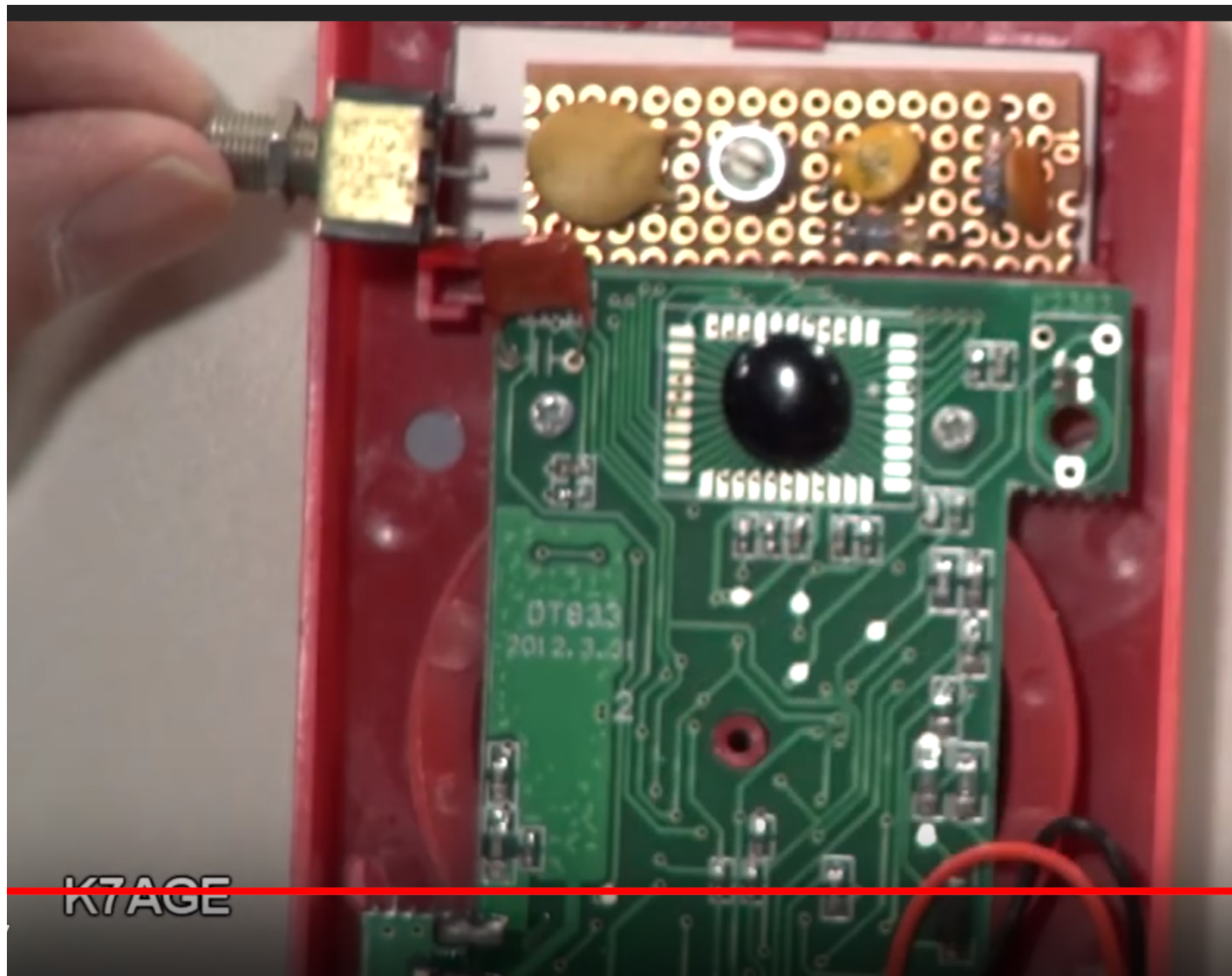




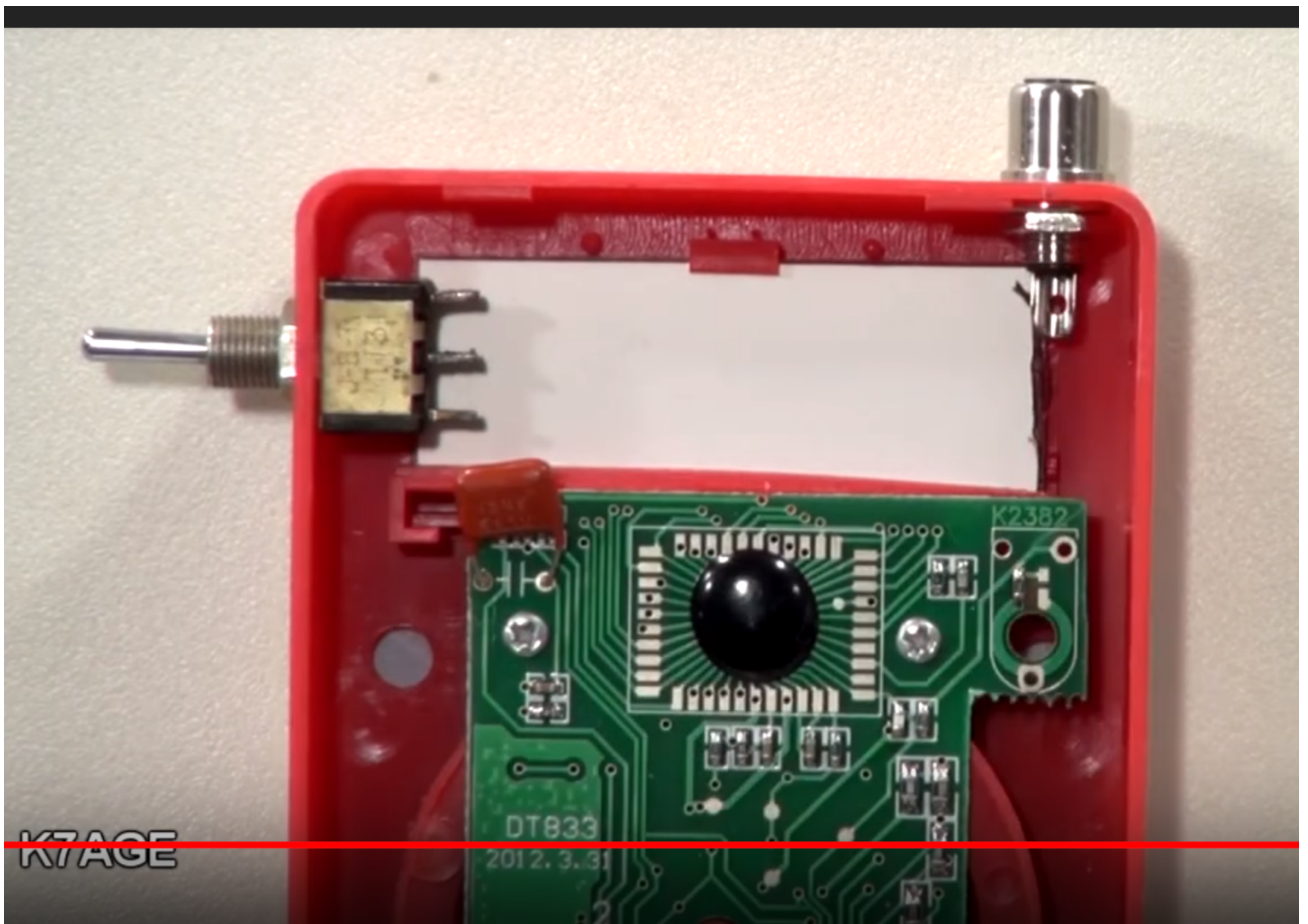




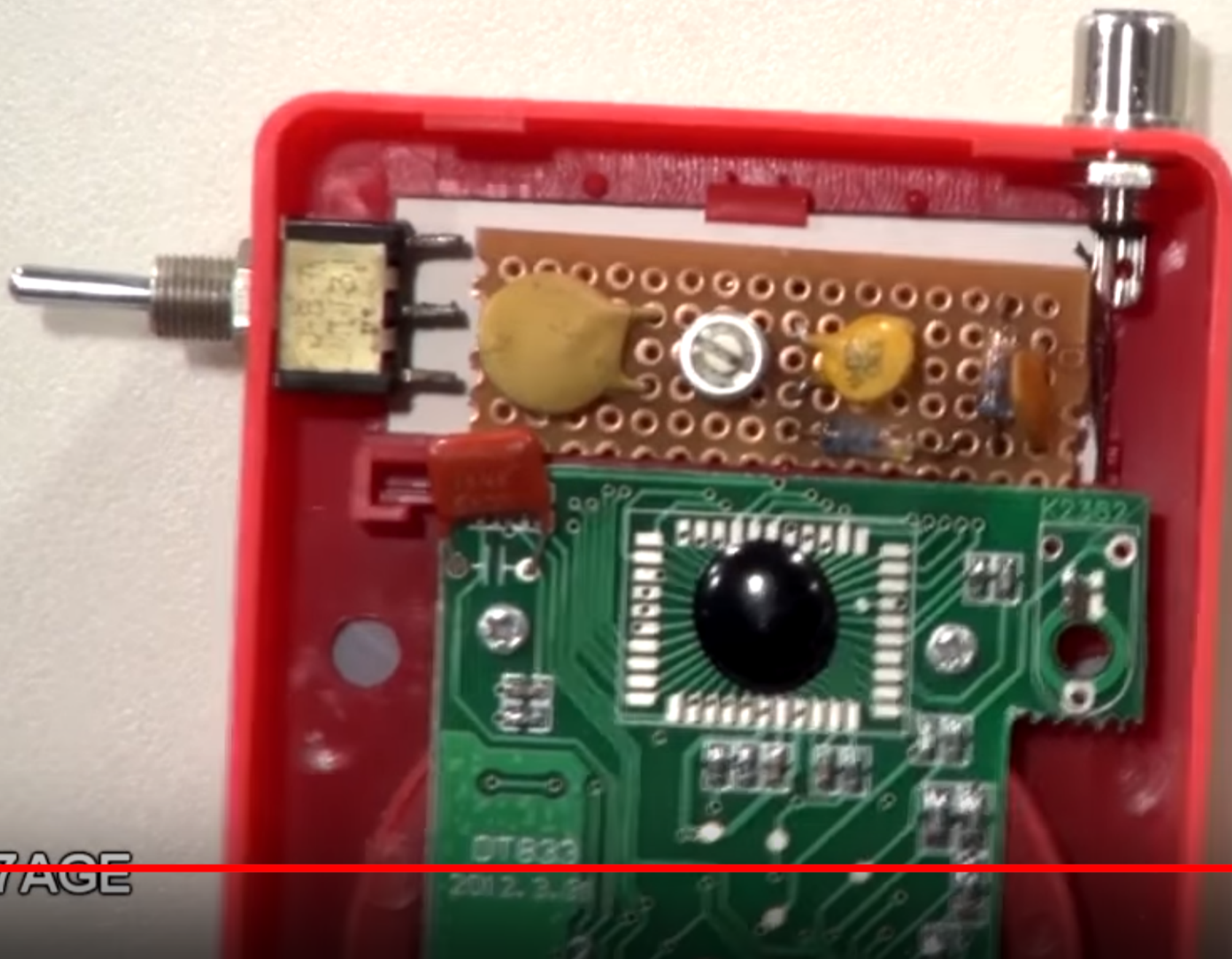
K7AGE



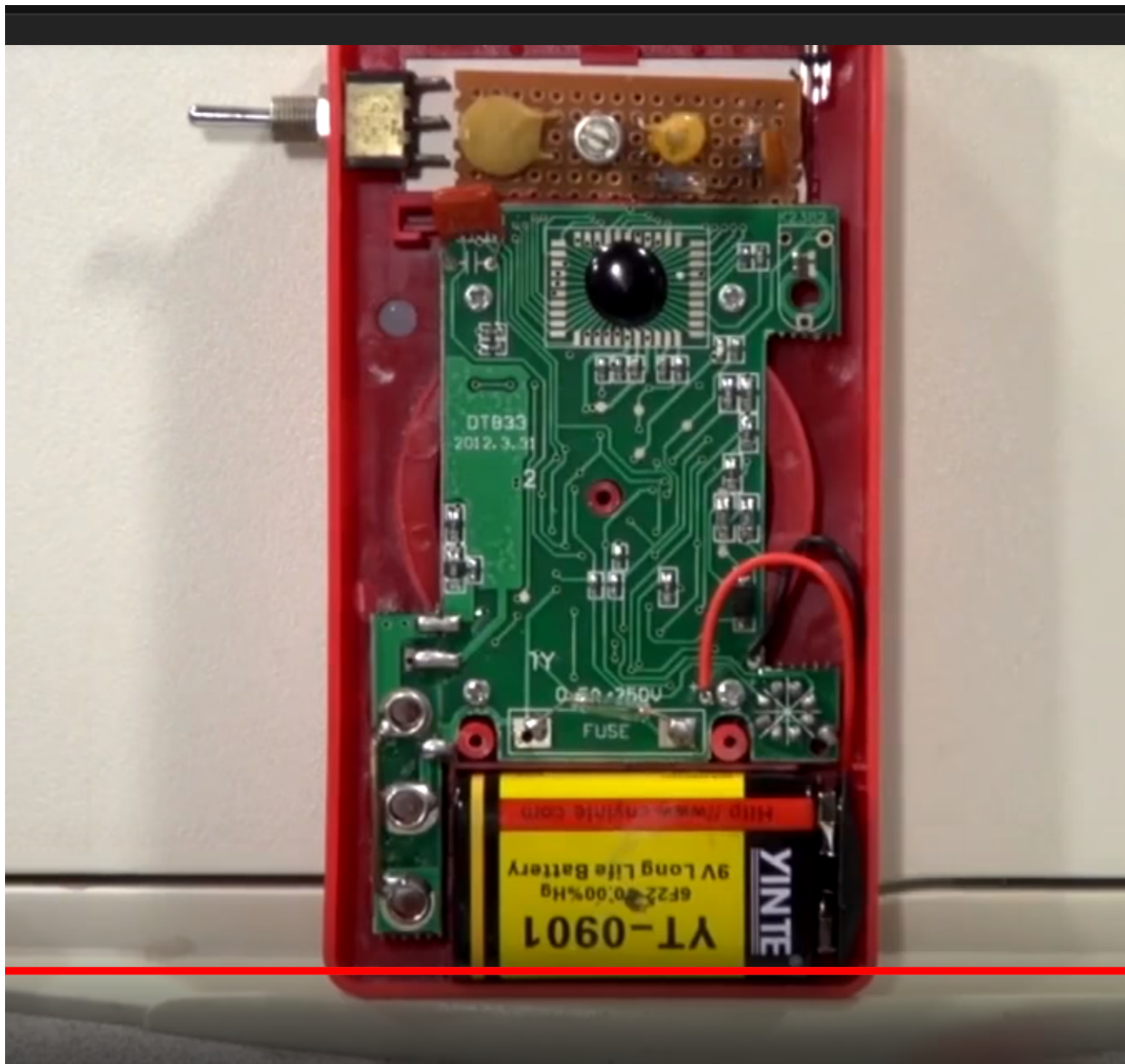
K7AGE



K7AGE



K7AGE





I have the wires reversed. I fixed that la



K7AGE

/ 12:07

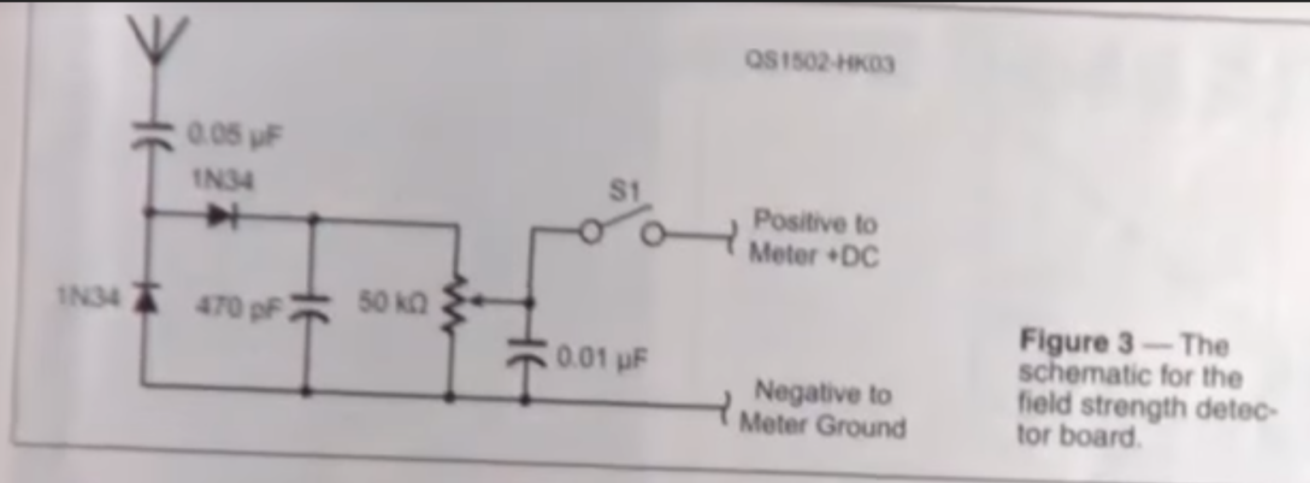


Figure 3 — The schematic for the field strength detector board.



Figure 4 — The detector board installed inside the multimeter case. The battery



Figure 5 — The original multimeter and its upgraded companion. (Richard Brown)

